The Royal Dockyards in England at the time of the War of ~~American~~ Anoncan Independence.

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Abstract

The six dockyards in England were engaged in the building, repairing and refitting the fleet. Hitherto the word of the sea service has been taken in judging their performance; since the sea officers were themselves involved, and could often be faulted, in servicing the ships, this unfavourable evidence should be treated with some reservation.

Nevertheless, there were many weaknesses in the yards. The first among their organisational defects was the split in executive control between the Admiralty and Navy Boards, which led to inefficiency and delay. Instructions had been formulated in the previous century, and subsequent orders were confused; in an organisation where respect for precedent was decisive, much was left in doubt. The yard officers were thus allowed a damaging amount of independence, and this in turn caused mistrust and a lack of understanding of yard problems between these officers and the boards in London. The first difficulty lay in the inadequate pay structure and consequent lack of incentive of the shipwrights. It also proved impossible to administer the huge amount of naval stores without a large degree of waste. Other problems included navigational

troubles and inadequate facilities, particularly at the all-important western yards. These problems led to delay, particularly in the refitting which was vital in wartime. The application of copper sheathing went some way to lighten this burden.

Inefficiency was primarily caused by the fact that the yards were overstretched by the increased size and number of the ships in this war, and by the failure to utilize inadequate resources more effectively. The system was at fault. Individuals, such as Lord Sandwich and Charles Middleton, worked hard to keep it going, while trying at the same time to improve it. Fortunately, defeat in the war encouraged the start of this reform in the 1780's.

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Contents

Abstract..... 2
Acknowledgements..... 4
Contents..... 5
Abbreviations..... 7

Introduction..... 9

Chapter One. The Central Administration..... 15

i) The Admiralty and Navy Boards..... 15
ii) The Navy Office..... 32
iii) Orders and Instructions..... 39
iv) The Resident Commissioners..... 50
v) The Effectiveness of the Central Administration..... 62

Chapter Two. The Internal Administration of the Yards..... 72

i) The Resident Commissioner and the Principal Officers..... 72
ii) The Technical Departments..... 85
iii) The Clerical Departments..... 100
iv) The Labour Force..... 111

Chapter Three. Pay and Working Conditions..... 133

i) Pay and Allowances: Officers and Clerks..... 133
ii) Pay and Allowances: Artificers and Labourers..... 152
iii) Minor and Occasional Benefits..... 167
iv) Embezzlement..... 181
v) Morale and Discipline..... 200

Chapter Four. The Administration of Stores..... 210

i) The Problem of Supply..... 210
ii) The Distribution of Stores to the Yards..... 220
iii) The Administration of Stores within the Yards..... 231
iv) Surveying and Accounting..... 246
v) Waste and Decay..... 257

Contents (Cont.)

Chapter Five. Technical Problems and Yard Facilities..... 264

i) Innovations and Inventions..... 264
ii) The Introduction of Copper Sheathing..... 274
iii) The Servicing of the Fleet..... 296
iv) Yard Facilities and Problems Afloat..... 306

Chapter Six. The Performance of the Dockyards..... 326

i) Building..... 326
ii) Repairing..... 334
iii) Refitting..... 342
iv) The Sea Service..... 350
v) The Civil Administration..... 361

Chapter Seven. Conclusion..... 376

Glossary..... 389

Appendices
I The Navy Board, 1774-1783..... 392
II The Principal Officers of the Dockyards, 1774-1783..... 393
III The Labour Force of the Yards, 1774-1783..... 396
IV The Labour Force: Warrant of March 1774; Return of March 1782..... 397
V Salaries and Incomes of Officers and Clerks, 1784..... 399
VI Pay and Allowances: Artificers and Labourers..... 400
VII Representative Sample of the wages of a Working Shipwright... 401
VIII Consumption, Delivery and Remains of Oak Timber, Thickstuff and Plank, 1771-1783..... 402
IX Oak Consumed, 1765-7; 1784 Establishment..... 403
X Distribution of Oak Timber (without Thickstuff and Plank), 1774-1783..... 404
XI Ships of the Line Built and Completed, 1774-1783..... 405

Bibliography..... 406

Abbreviations

Add MSS	Additional Manuscripts, British Museum.
BL	The Letters and Papers of Charles, Lord Barham, (ed) J.K. Laughton, (NRS, 1907-11).
G	Correspondence of George III, (ed) J. Fortescue, (London, 1927-8).
NMM	National Maritime Museum, Greenwich.
NRS	Naval Record Society.
PP-CE	Parliamentary Papers, Reports of the Commissioners appointed to enquire into any Irregularities, Frauds or Abuses...in the several Naval Departments, Sixth Report, 1803-4, (83), vol. III (cited in text as the Commission of Naval Enquiry).
PP-CF	Parliamentary Papers, Reports of the Commissioners appointed to enquire into the Fees, Gratuities, Perquisites and Emoluments, which are or have been lately received into the several Public Offices..., Sixth Report, 1786-8, 1806, (309), vol. VII (cited in text as Commission on Fees).
PP-CR	Parliamentary Papers, Reports of the Commissioners appointed for Revising and Digesting the Civil Affairs of His Majesty's Navy, First and Second Reports, 1806, (8,92), vol. V (cited in text as Commission of Naval Revision).
PRO	Public Record Office.
SaP	The Private Papers of John, Earl of Sandwich, (ed) G.R. Barnes and J.H. Owen, (NRS, 1932-8).

Abbreviations (cont)

ShP	Shelburne Manuscripts, William L. Clements Library, Michigan.
SO(a)	Navy Board Standing Orders to the Yards, 1767-1782 (PRO, ADM 106/2508).
SO(b)	Navy Board Standing Orders to the Dockyards, 1783-1791 (PRO, ADM 106/2509).

Where necessary, capital letters and punctuation in quoted material have been made to conform with modern usage.

A number in parentheses after a ship's name indicates its number of guns.

Introduction

The six royal dockyards formed the largest industrial organisation in England during the eighteenth century. They were engaged in the largest technological task of the time, which was the building, maintaining and equipping of the British fleet. Until recently the fighting navy has had first call on the attentions of naval historians, but an increasing awareness of the importance of the administration supporting the fighting effort has brought less famous men with more mundane tasks into greater prominence. The effect of this neglect has been to give the civil administration of the navy an unfavourable reputation. For instance, we are told that in this period, "mismanagement, bare-faced roguery, confusion, and disorganisation were rampant at all the dockyards",[1] and the general picture that has been handed down is of a sleepy and inefficient organisation, staffed by officials and workmen whose only aim was to relieve the Crown of its property under their charge.

Although there is some truth in this picture, little account has been taken of the difficulties of administering the dockyards. The idea of a lack of urgency has certainly been over-emphasized. Byam Martin was taken by his father to Portsmouth in 1780; later he wrote: "The busy, bustling scene often comes to my recollection like the renewal of a pleasant dream...everything seemed to be in motion...all this was going

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1. Edward Fraser, The Londons of the British Fleet. (London, 1908), p. 258.

on at a period of the war which called for great exertions."[1] In fact, there were not many periods of this war when great exertions were not called for. The American War of Independence was the only war in the century which was a clear defeat for the British navy. It was the only war in which the Bourbon powers did not have to divert their efforts into major campaigns on the continent. However, this study is not an attempt to explain that defeat in terms of the defects or otherwise of the organisation of the navy, but rather, in the words of a distinguished study of an earlier period of naval administration, "to illuminate certain aspects of the nature and development of British government".[2]

Defeat in the war gave the impetus to reform what had hitherto been a successful navy. The organisation of the dock-yards had outgrown the principles and procedures that had been established in the previous century, and by which they were still governed. While the functions of the yards had remained the same, the complexity of the work had increased on a large scale. Every class of ship had grown in size and number, and building and equipping them demanded more plant and labour; but it was easier to build larger ships than to refashion the

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1. Journals and Letters of Sir T. Byam Martin, (ed) R. Vesey Hamilton, (NRS, 1903), I,5.

2. Daniel A. Baugh, British Naval Administration in the Age of Walpole, (Princeton, 1965), preface.

attitudes and interests involved in change. Change involved looking to the future, but the whole concept of the government of the yards looked to the past. Precedent and custom governed day-to-day affairs as much as they governed the growth of the system.

Despite this pervading attitude, these were years of change for the dockyards. Two men were largely responsible for this. The first was Lord Sandwich, appointed First Lord of the Admiralty in 1771, who saw the war nearly to its conclusion before falling with North's government. The opprobium which fell on that administration unjustly overflowed upon Sandwich's performance as First Lord. The second was Charles Middleton, later Lord Barham, who was appointed to the other key post in the civil administration of the navy, the Comptrollership of the Navy Board. These two men were the architects of reform. In spite of contrasting backgrounds, outlook and temperament, they formed an ideal working relationship. Although their wartime partnership resulted in a period of particularly effective administration, they did not coincide in office in peacetime, and therefore had no opportunity for a joint effort for reform; however, the First Lord prepared the way for the changes which Middleton made after the war. Improvement, however, progressed neither as far nor as fast as either man hoped. There was little chance of fundamentally improving the system until there was a change in social and

administrative attitudes throughout the dockyard organisation. The taking of fees, inadequate concepts of responsibility and the lack of concern with speed and accuracy could not be counteracted by the stroke of a pen. It was this factor that led to the frustration of Sandwich's plans before the war, and Middleton's disappointments in the 1780's.

The six yards were of varying size and importance. Henry VIII had established Deptford and Woolwich on the Thames; comparatively small yards now because of their inaccessibility and the shallowness of the River,[1] they nevertheless were very busy in wartime. Deptford handled a greater part of the stores sent out to the yards at Antigua, Jamaica, Halifax, Gibraltar and Port Mahon, while Woolwich, apart from sharing in this task, had very large rope works, which provided most of the rope sent to the foreign yards. Twelve miles up the river Medway was Chatham, established in Elizabeth's reign. Once the major yard to meet the Dutch threat, it now languished because of silting problems in the Medway and because the enemy was now France, and the Channel and the Western Approaches the main centre of operations. It was still, however, a large yard, and was used for building and major repairs to ships. Partly to compensate for the intricacies of the Medway, a small yard had been built at Sheerness in 1665 on an unhospitable site at the mouth of the river. This served as a

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1. The Thames was invariably known as 'The River'.

refitting yard of limited capacity. In this war, the two western yards, because of their strategic position, were of most importance. Although established in 1689, Plymouth's rise and expansion had been comparatively recent, and in several ways it was beginning to rival Portsmouth, which had been founded at the same time as the River yards. These two yards served as both the main refitting bases and as rendezvous for the fleet. Most of the major problems in the administration centred on these two yards.

Mention must also be made of the minor refitting bases at Harwich and Leith, which were set up in 1781 when the North Sea became strategically important. They were dismantled on the peace.[1] Kinsale served the same purpose in the Irish sea, while Deal, although some naval stores were kept there, was really no more than a communications post for the ships sheltering in the Downs. Since these bases were largely concerned with storing and watering ships, and since they undertook only minimum repairs and refits on the smallest vessels, they hardly intrude upon this study.

One historian has recently written that, "the long-established impression (it cannot be termed more than that)

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1. NMM, ADM A/2759, 2, 24 Jan 1781; BP/2, 1 Jan 1781; BP/4, 4 Feb 1783; A/2784, 26 Feb 1783.

of eighteenth-century administration as generally corrupt, inefficient and inactive needs considerable revision".[1] The purpose of this study is to examine this impression in relation to the administration and performance of the six royal dockyards in England.

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1. Norman Baker, Government and Contractors, The British Treasury and War Supplies, 1775-1783, (London, 1971), vii.

Chapter One. The Central Administration.

i) The Admiralty and Navy Boards.

For most of the eighteenth century there were invariably months of delay between a Cabinet decision calling for the mobilisation of ships and the day that those ships sailed as a fleet or squadron from their rendezvous at Spithead or Torbay. In this time the administration was not idle, although orders, memoranda and decisions filtered through the network of boards and offices at a slow pace by modern standards. After the King's command, the first step in the administrative process was for one of the Secretaries of State to inform the Treasury, the Admiralty and the Ordnance of the decision.[1] At this point it was the First Lord of the Admiralty who was at the centre of the stage, for it was from him, acting as the "executive servant" of "the collective wisdom of all His Majesty's confidential ministers",[2] that the ripples of

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1. For a full analysis of the workings of the higher reaches of the administration see Piers Mackesy, The War for America, 1775-1783, (London, 1964), pp.12-24; David Syrett, Shipping and the American War, 1775-83, (London, 1970), pp.1-6; R.G. Usher,"The Civil Administration of the British Navy during the American Revolution," (unpub. Ph.D. thesis, Michigan, 1942), pp. 1-14.
2. SaP, II, 255, undated.

activity slowly spread through the civil administration of the navy. At the same time as he and his board appointed officers and drew up lists of ships, he directed subordinate boards to put in hand the fitting out, storing and victualling of the ships and the gathering of the crews.[1]

Thus the duties of the Admiralty were for the most part executive, conducting the military administration of the fleet under the guidelines of a higher authority, although, compared with other departments, it was "wayward and independent".[2] Just as it was the duty of the Secretary of State to co-ordinate the whole war machine, it was the task of the Admiralty to co-ordinate the services within the civil administration of the navy. Liaison had to be maintained with the Board of Ordnance, while the departments within the civil administration had to be overseen. Of these, the Navy Board was by far the most important. It provided the link with the Victualling and Sick and Hurt Boards,[3] while it also had charge of most of the financing

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1. The Admiralty Board was usually about seven strong, of which two were generally sea officers. For a list of the members of the Board see SaP, I, xv-xvi. For an explanation of the domination of the Board by the First Lord see R. Middleton, "Pitt, Anson and the Admiralty, 1756-61", History, 55, 1970, p.191.

2. Mackesy, p.19.

3. These smaller boards, and the Treasurer of the Navy, had been part of the Navy Board, but had broken away from it under pressure of business early in the century.

of the navy, the buying of naval stores and the organisation of transports; but above all, it had the responsibility of the building, equipping, repairing and refitting of the fleet in the dockyards.

The chief feature, therefore, of the administration of the dockyards was that executive power was divided between the Admiralty and Navy Boards. Their relationship was the familiar one of the politicians over the professionals; the Navy Board was, according to Monson, writing at the beginning of the previous century,

> the conduit pipes to whom the Lord Admiral properly directs all his commands for His Majesty's service, and from whom it descends to all other inferior officers and ministers under them whatsoever. 1

The relationship was, however, more subtle than this by the eighteenth century, for the two boards were interdependent. The Navy and its works exercised a mystique over the eighteenth-century mind; the vagaries of terms and methods were felt to be comprehensible only to those in the service. The Admiralty's wide political and appointive powers were sufficient to ensure its primacy, but the senior board was

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1. The Naval Tracts of Sir William Monson, (ed) M. Oppenheim, (NRS, 1913), III, 398, written between 1605 and 1618.

unusually dependent on the professional advice of the Commissioners at the Navy Board.

In this respect, Sandwich was something of an exception to the typical First Lord; his long association with the civil administration gave him more of an insight into its ways than even the sea officers who occupied the post. Traditionally, Sandwich has been cast as "that lord of misrule"; the same historian contends that he, "probably did more damage to the navy entrusted to his care than any hostile French admiral haddone".[1] In the context of this war this is perhaps not a very damaging assertion; nevertheless, in recent years his reputation has taken a turn very much for the better. The publication of his papers was responsible for the start of this process;[2] thus, a more recent view is that "Sandwich was one of the most able and conscientious First Lords that the Navy has had; a worthy colleague and successor to Anson".[3] More recently still it has been written of him that: "Whatever office he held, he

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1. R.G. Albion, Forests and Sea Power, (Cambridge, Mass, 1926), p.282.

2. The Private Papers of John, Earl of Sandwich, (ed) G.R. Barnes and J.H. Owen, (NRS, 1932-8). See especially, I,xiv.

3. M.J. Williams,"The Naval Administration of the Fourth Earl of Sandwich, 1771-82," (unpub. D.Phil. thesis, Oxford, 1962), p.570.

brought to it the inquiring mind and tremendous, restless energy that made him an extremely effective administrator".[1]

These judgements form a much truer picture of Sandwich than those of the earlier Whig historians, although there has been a tendency recently to judge his performance as First Lord uncritically. For instance, some of his strategic decisions were questionable, and there were signs that he grew tired towards the end of his administration, especially after the death of his mistress. If there was fatigue and loss of interest it would hardly be surprising, for running the navy was a discouraging affair in this war, and especially so for the First Lord, after the effort he had put into the civil administration before hostilities began. There is no gainsaying his energy and intense interest during the early 1770's, when every summer he completed an arduous tour of the dockyards.[2] Nor is there any doubt that he effected many improvements during this time, although his effectiveness as a reformer was limited by the fact that the civil administration's complacency had yet to be shaken by defeat in a war. From the evidence of the length and quality of his papers and letters, the legend of administrative laziness seems to be belied, although it is true

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1. J.M. Haas, "The Pursuit of Political Success in Eighteenth-Century England; Sandwich, 1740-71", Bulletin of the Institute of Historical Research, XLIII, 1970, p.57.

2. Admiralty visitations took place from 1771-1778 and in 1784.

that letters were delayed because the Secretary to the Admiralty Board had little initiative. Although it was only through this office that the Board could correspond, the Secretary was unable to take any independent action; the result was that the office of First Lord was heavily over-centralised. However, even Lord Howe, who was no friend of Sandwich, confessed that, "to give him his due, he is seldom backward...in answering letters".[1]

His greatest administrative talent, however, was his adroit handling of people. It was true that the navy was badly split for most of the American war by politics and personalities, but this stemmed from the complicated party situation and unpopularity of the war rather than immediately from the First Lord, although he was dogged by a reputation of untrust-worthiness which stemmed from his earlier betrayal of Wilkes. In his first stay at the Admiralty, Sandwich had found the need for tact in handling Bedford, and he found that something of these gifts were still needed. He improved the capacity of an overworked navy by building up a following of able men, most of whom were politically "nonentities by eighteenth-century standards".[2] Hugh Palliser and Lord Mulgrave were

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1. Quoted in Mackesy, p. 162.

2. J.H. Broomfield, "Lord Sandwich at the Admiralty Board; Politics and the Navy, 1771-1778", Mariner's Mirror, 51, 1965, p. 9.

talented and hardworking, and gave Sandwich valuable support at the Admiralty and Mulgrave, especially, in the Commons. However, of all the new men who rose to prominence during Sandwich's administration, it was the Comptroller of the Navy, Charles Middleton, who was the most able; he also needed the most tactful handling.

The Navy Board has long held the reputation of having substantial independence. A.T. Mahan noted that the Admiralty was only "nominally superior", and a recent view is that the Admiralty found it "difficult if not impossible" to control the Navy Board during this period.[1] The power of the professional board was clear; it could withdraw its technical expertise, and use it to attempt to extend its influence. If it came to an issue, the Navy Board could withdraw the support and co-operation which was essential to the smooth running of the administration. It was therefore essential that relations between the First Lord and the Comptroller of the Navy Board were healthy. In spite of the First Lord's knowledge of the civil administration, and the sea-going experience of Palliser and Mulgrave, this Admiralty Board needed, like all its predecessors, information from the professional board, and in spite of two disagreements which have tended to be seen as typical of the relationship

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1. A.T. Mahan, Naval Administration and Warfare, (Boston, 1908), pp. 13, 26; Syrett, pp. 18-20; Usher, pp. 82-99.

between the two boards, this period was marked by good relations. This was due in no small part to Sandwich's handling of Middleton.

This co-operation was needed to fulfil the main principle of naval administration laid down by Mahan, which was,

> to attain and preserve substantial unity of executive action, while at the same time providing for the distribution among several individuals of a mass of detailed duties, beyond the power of any one man to discharge. 1

The two boards were situated at different ends of London; not only was executive action not unified, but it was not even under one roof. In the administration of the dockyards, the general pattern was that the Admiralty initiated policy, and sanctioned and issued the more important orders, acting on the professional advice of the Navy Board. These orders were then distributed to the yards by the junior board. The theory was simple, but in detail it was far from clear.

The chief difficulty was that there was no clear administrative principle which split the responsibilities for the dockyards between the two boards; as a result there were large areas of potential disagreement. The supervision of the

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1. Mahan, p.18.

yard personnel illustrated this weakness. While the Admiralty kept the promotion of most of the dockyard officers firmly in its hands, the professional board, for no other reason than custom, appointed the two most junior ranks of officers. It is significant that this question caused the only important disagreement between Sandwich and Middleton in the four years that their periods of office coincided.[1] The particular point at issue was over the acceptance of Navy Board advice. Other areas were less contentious. While routine pay questions, appeals for sick pay and the administration of the payment of the yards were the concern of the professional board, superannuation of both officers and men was awarded by the Admiralty - this time acting on information from the Navy Board. Discipline was handled in the main by the professional board, although the commissioners were hampered in their dealings with the yard officers by the principle that only the appointive board could discipline or even reprimand its appointees.

The greatest clog to efficiency, however, lay in the confusion and delay caused by the division of the two boards in the considerable task of the management of the fleet. The difficulties stemmed from a lack of co-ordination, and from

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1. See R.J.B. Knight, "Sandwich, Middleton and Dockyard Appointments", Mariner's Mirror, 1971, 57, pp. 175-192. Sandwich and Middleton overlapped in office between August 1778 and March 1782.

the Admiralty's failure to appreciate the technical problems facing the Navy Board and the dockyards. The Admiralty decided when a ship was to be built, but the professional board had to be consulted, since it alone was competent to judge when and where the facilities and materials were available. Orders to repair, lay up "in Ordinary",[1] break up or sell a ship also came from the Admiralty, but advice from the Navy Board, which in turn used information from the surveys of the yard officers, was automatically accepted; the politicians could hardly do otherwise. Routine maintenance, or "Triennial Trimmings", was the responsibility of the yard officers and not directed in detail from London; this ceased once the war had started because of pressure of other work.[2]

Fitting and refitting the fleet, especially at a general mobilisation, posed greater problems. The procedure took the following form. The Admiralty issued an order to the Navy Board to fit a ship for "Channel" or "Foreign" service.

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1. This was the term for a ship laid up out of commission; the cost of its upkeep was borne on the "Ordinary" Estimate of the navy.

2. If in the course of inspection more than routine repairs were found to be needed, a report and estimate had to go all the way up to the Admiralty before work could proceed (e.g. NMM, ADM B/189, 23 May 1775; PRO, ADM 106/2592, 26 May 1775).

The order also specified the number of men needed to man the ship, and the amount of victuals, beer, spirits and stores to be carried. At the same time, the Navy Board was requested to inform the Admiralty when the ship would be ready to receive seamen. The Navy Board then sent a warrant to the yard concerned and informed the Commissioners of Victualling of the needs of the ship. The yard officers replied, as soon as it was possible, with an estimate of the date of the ship's readiness, which in turn was transmitted to the Admiralty by the Navy Board. On or near the estimated day, the Admiralty ordered the professional board to put the ship into "Sea Victualling", by which time the ship's officers should have been on board and have assumed responsibility for the ship.[1]

The trouble was that, while the Admiralty decided on which ships were to serve, it was more often than not unguided by the professional board, which had a much more accurate picture of the state of ships in the yards. This trouble was not new; in the 1739-45 war,

> it was absolutely essential that those ships which could best prepare themselves for sea after docking should be taken in hand first. The Lords of the Admiralty fully embraced this policy, and yet again and again, while absorbed in each new strategic necessity, they allowed it to be undermined by their own orders. 2

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1. "Sea Victualling" merely signified that the ship was in commission; it might still be many months before it actually was at sea.

2. Baugh, p.339.

It was as much a case of the Admiralty not appreciating the difficulties of fitting out the fleet. Although the senior board had some direct contact with the yards, it was scant compared to the amount of information which the Navy Board obtained. Every movement in and out of dock was transmitted through weekly reports, and problems of tide, labour and the difficulties of estimating the extent of damage and decay was understood by the technical officers of the junior board. As a rule, the sea officers at the Admiralty knew little of this, and the politicians even less.

The second weakness was the lack of co-ordination between the two boards. The effects of this could be seen most clearly at yard level. The main problem was that neither the sea service nor the civil administration could officially make a move without orders from their respective boards. The Port Admirals, based on flagships at the Nore, Spithead and Plymouth, were the executive arms of the Admiralty. Their main concerns were manning, victualling, court-martial and ensuring that the ships sailed as quickly as possible, but they came up against the civil administration very frequently. The correspondence of Richard Roddam, who was, "Commander-in-Chief of His Majesty's ships and vessels in the River Medway and at the buoy of the Nore" for most of the American War, abounds

with irritation and frustration; a conscientious man, he found the ways of the civil administration strange after years of life on a quarter deck. "I am...greatly hurt when I see anything retard the general good", he wrote on one occasion, and on another he observed to the Admiralty, "how necessary it is for the officers here to have a latitude for furthering the service".[1]

Much in fact depended upon good relations between the Port Admiral and the Resident Commissioner, who was the representative of the Navy Board at the nearby yards of Chatham, Portsmouth and Plymouth. An informal arrangement between them could save days of delay, although any arrangement had to be confirmed later by application to the boards in London. The division of authority affected the simplest of situations; for instance, in March 1775 the captain of the Martin sloop wrote to the Admiralty, requesting that it give an order to hasten the fitting of his ship at Chatham. Philip Stephens, secretary to the Admiralty Board, wrote to the Navy Board on a Saturday. The letter was not read until the Board met on Monday, and the order did not reach Chatham until Wednesday.[2] The whole process took nearly a week, for there was no official machinery

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1. NMM, Roddam Papers, uncatalogued, Roddam to the Admiralty, 14 Aug 1778, 6 Jun 1779.

2. NMM, ADM A/2689, 18 Mar 1775; PRO, ADM 106/2592, 20 Mar 1775.

to bridge the gap between the civil and military sides of the service at a local level.

The Admiralty also initiated orders for the movement of ships from yard to yard, and therefore directed ships coming home from a commission to a particular yard for paying off or refitting. The Navy Board, responsible for both these tasks, had to propose to the Admiralty where this should be. The general rule was that each ship had a permanent base, usually the one where she was first built or fitted out. This often had to be changed; another yard might have a suitable dock clear at that moment, or a ship might not be seaworthy enough to reach the designated yard. The placing of ships after a cruise was not a great problem, although there was no great system about it. The Admiralty took Navy Board advice without any difficulty, although the division of authority sometimes led to problems in this respect.[1]

The system, as it was, was not suited to emergencies, and consequently had to adapt itself in wartime. With the confidence that Sandwich placed in Middleton during the major part of the American war the situation improved. Contact and co-operation between the two boards in London increased; Navy

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1. e.g. NMM, ADM B/188, 26 Oct 1773; ADM A/2688, 4 Feb 1775; ADM B/189, 7 Feb 1775; ADM A/2692, 15 Jun 1775.

Board advice was given and taken more freely. The Admiralty began to give advance notice of its ship requirements.[1] The Navy Board kept a close eye on the works of the yards, especially at Portsmouth and Plymouth.[2] At the same time, more and more decisions had to be taken on the spot, especially when the fleet came in. Unguided by official precedent, it was on these occasions when the relationship between the Port Admiral and the Resident Commissioner was most tested.

It is Mahan's contention that the existence of two boards led to the further evil of epitomising the split between the military and civil sides of the service, although, as he observes, "the opposition between civil and military...may be said to be original, of the nature of things".[3] There is no doubt that the military officer found administration distasteful, and considered the officers in the civil line his social and professional inferiors. Thus senior or influential officers would use the Admiralty to overrule the Navy Board when it suited them. The time that this was most often likely to happen was in the fitting of ships, for clear rules were laid

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1. e.g. NMM, ADM B/197, 3 Nov 1778.

2. e.g. PRO, ADM 174/116, 28 Mar 1779; 174/117, 10 Nov 1780; NMM, POR/F/17, 19 Ap 1780.

3. Mahan, p.8.

down of how much and how many stores were given to each class of ship. For instance, Lord William Campbell, embarking on a sloop to take up the Governership of South Carolina, did not hesitate to apply to the Admiralty for, among other things, an extra mizen sail, which the Navy Board was ordered to supply. A similar request from a less well-placed sloop captain in the same month to the Navy Board elicited the reply that. only,"one mizen (is) allowed by the establishment".[1] There were many examples of this additional burden on the Navy Board and the yards.[2]

The attempts by sea officers to obtain more stores than were allowed was a permanent feature of the eighteenth-century navy. A potential source of friction was therefore always at hand. The Resident Commissioner of the yard, who had sea-going experience, was supposed to settle these demands, but, since the previous century, "he either submitted to them (i.e. the commanders) or quarrelled with them so long as they remained in harbour".[3] By the time of the American war, the

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1. NMM, ADM A/2689, 29 Mar 1775; A/2690, 1 Ap 1775; PRO, ADM 106/2592, 6, 8 Mar 1775. Lord Campbell was the brother of the Duke of Argyll, an ex-M.P. and naval captain.

2. e.g. NMM, ADM A/2689, 22 Mar 1775; PRO, ADM 106/2597, 24 Ap 1778; ADM 95/95, 17 Nov 1778. These examples concern Duff and Mulgrave - both personal friends of Sandwich.

3. John Ehrman, The Navy in the war of William III, 1689-1697, (Cambridge, 1953), p.101; also Baugh, pp. 337-8.

situation was such that the professional board was flooded with appeals at every refit, and little attempt was made to delegate authority.[1] Senior officers tended to think that dealing with the Navy Board was beneath their dignity, but as the pressure of war increased the burden on the administration, the Navy Board's technical advice was more often followed, and was less often overruled for other than professional reasons.

Friction between the two sides of the service was a constant factor at this time; in this war the bitter divisions in the fighting navy, and especially the Channel Fleet, affected and increased it. At every level this led to tension and inefficiency.[2] Yet it was inevitable that the Admiralty gave the fighting officers their heads, for the end of naval administration is the equipping of the fighting officer. While the strategic and the military were the prime concerns of the Admiralty Board, its interest in the dockyards was constant. In some aspects of

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1. One exception to this was the order (SO(a), 686, 8 Jan 1776) to allow automatically "an extra bulkhead for the security of spirits" to any captain who requested it. Many did, for the long journey to America demanded a less bulky form of drink than beer.

2. For the sort of bickering that went on at the highest level see Duke Crofton, An Account of the Preparations made for...the King at Portsmouth in June 1773, (London, 1887), pp. 28-34. This pamphlet was made up from minutes made by George Marsh, a member of the Navy Board, and is subtitled: "Also of the Disgrace that the Navy Board met with on that occasion".

the administration, the Admiralty had little interest.[1] The material condition of the fleet, however, was too important to leave entirely to the professional board, and it was essential that good relations between the boards ensured that this concern was not deemed interference by the Navy Board, and that this board had the confidence of the Admiralty.

ii) The Navy Office

Between 1770 and 1790 the navy was fortunate in having able and energetic men as Comptrollers of the Navy Board. Although the post was "only named first among those who have equal authority",[2] the occupant set the tone of the whole Board and Office. In spite of being preceeded by two Comptrollers of some worth,[3] Charles Middleton dominates this period of naval administration. His appointment in August 1778,

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1. For instance, the Admiralty took almost no interest in the transport service, merely redrafting orders from the Secretary of State, and sending them to the Navy Board. See Syrett, pp. 9-10.

2. NMM, MS66/086, Observations on the Navy Board Department, memorandum by Middleton, Dec 1786.

3. Hugh Palliser and Maurice Suckling. See Appendix I.

after a worthy but unexciting career at sea, turned out to be one of Sandwich's more inspired decisions.[1] It was not, however, uninfluenced; James Gambier, Middleton's brother-in-law and on close terms with the First Lord, appears to have figured in the appointment. At the time, Middleton wrote to Sandwich to say that the post was, "superior to any pretensions on my part".[2]

This was the last time that Middleton displayed any degree of modesty concerning the civil administration - or indeed any part of the navy - for the remaining part of his career of nearly thirty years. He remained at the Comptrollership until virtually forced out of office in March 1790, but was eventually rewarded with a peerage and the Admiralty at the time of Trafalgar. It was a turn of events which would have seemed ironic to many of his colleagues two decades before. Extremely hardworking, and censorious of those who did not conform to his high standards,[3] he did not fit in easily to a system which

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1. Middleton had a Scottish legal and administrative background, and he was related to the Dundas family through his mother. He was made a lieutenant in 1745, and a post captain in 1758. He was on half-pay until 1775, when he was appointed to the command of a guardship, and then to a ship building; from here he went to the Navy Board. He was knighted in 1781. See Mackesy, p.164; Syrett, pp.22-4; P.K. Crimmin,"Admiralty Administration, 1783-1806", (unpub. M.Phil. thesis, London, 1967), pp.42-3; Paul Webb,"The Navy and British Diplomacy, 1783-1793", (unpub. M.Litt. thesis, Cambridge, 1971), pp.73-6.

2. NMM, SAN/T/8, 8 Mar 1778.

3. See ShP, 151, no. 87, 2 Sep 1782, Gregson to Shelburne.

depended largely upon good personal relations to make it run smoothly. To one historian he appears to have been, "one of those men who, in such a system, will do the work of others merely to have it done better and faster".[1] His lack of humour, his evangelical earnestness and his unrelenting advertisement of the purity of his motives (especially in view of his obvious ambition) make him an unattractive figure. Historians still react to his intolerance and petulance as many of his contemporaries did; the most extreme comment is that he was a, "prig and bore of the first water".[2]

Even if this was so, the debt that the navy owed the Comptroller during the war was very considerable, for the administrative pressure on the Board in general, and Middleton in particular, was enormous. In addition to the administration of the dockyards, the Board contracted for all naval stores, except for Ordnance, food and medicine. It also contracted for the shipping needed to carry troops and stores to America, and after 1779, army victuals as well. It prepared naval estimates for Parliament, audited all naval accounts, and organised the payment of both seamen and yard workers. It

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1. Usher, p.72.

2. O.A.R. Murray, "The Admiralty", Mariner's Mirror, 24, 1938, p.335.

also administered certain sea-going petty officers.

The Navy Office was one of the few departments of state with over a hundred clerks on its establishment. At the end of the war there were ten Commissioners on the Board,[1] each responsible for his own department, although they spent most of their time at the office in meetings of the Board which went on for the best part of the day. Half the departments within the office dealt with accounts and returns, but such were the arrears that during the American War these departments were dealing with matters which had nothing to do with the conduct of the war.[2] Those departments concerned with the dockyards included the Comptroller, who, apart from his general superintendence of business at the Board, had his own office of Bills and Accounts, which was responsible for the administration of pay in the yards, and especially at Deptford and Woolwich.

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1. This figure does not include the Commissioners resident at the yards. See Appendix I. For descriptions of the workings of the Navy Office, see ShP, 151, no.40, 9 Sep 1782, Middleton to Shelburne. His ideas are also contained in NMM, MS66/086, Observations on the Navy Board Department, which is a fair draft of the memorandum printed in BL, II, 235-249. See also Baugh, pp.35-48; Mackesy, p.16; Syrett, pp.20-36; Usher, pp.50-80.

2. These included the Comptrollers of the Treasurer's, Storekeeper's and Victualler's accounts. Those concerned with current business but not the dockyards were the Clerk of the Acts (secretary to the Board) and the non-seagoing Extra Commissioner. See Appendix I.

The member of the Board most concerned with the dockyards, and the person next in line after the Comptroller at the Board, was the Surveyor of the Navy. His charge, and that of his two Assistants, was of every part of the ships building in the yards, as well as the supervision of the buildings and docks and technical side of the contracting for stores. From late 1777 two men filled this position. Sir John Williams was far too old to fulfil the obligations of this strenuous post, and Edward Hunt was appointed to assist him. This potentially awkward arrangement was fortunately facilitated by the "good-natured disposition" of Williams, although Hunt, who was evidently quite able, being promoted over the heads of more senior men, was away at the yards, and therefore from the possibility of friction, for long periods during the war.[1] Williams's age precluded any travelling on his part; he thus attended the Board and supervised the handful of shipwrights in the Surveyor's office who were employed in drawing the plans for the ships to be built. The two Assistants' main task was the superintendence of the ships building in merchant yards: the responsibility of the First Assistant was for those ships building in the West Country, and his colleague had charge of those ships building on the east and south coasts. Southampton marked the division of responsibility.

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1. BL, II, 179, 16 Nov 1784, Middleton to Howe; See also ShP, 151, no.87, 2 Sep 1782, Gregson to Shelburne.

The Board suffered very considerable disadvantages in keeping abreast of its work. The first was an over-crowded building at Crutched Friars. The transfer to Somerset House did not take place until 1786, although the Admiralty received complaints about the slowness of the move as early as 1781.[1] Secondly, there was a poorly-distributed work load which, because of precedent, was difficult to adjust. Some clerks and some departments worked very hard, while some led easy lives. All this was exacerbated by the badly-conducted meetings of the Board. There was no attempt to organise business before the Board met so that matters were discussed in a logical order. Some Commissioners were desperately over-loaded with work, while others, if Gregson can be believed, hardly ever came to the Board. In both cases this led to an excessive dependence upon the clerks. Lastly, there was a certain amount of friction within the Board itself. This can be explained by Middleton's domineering attitude.

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1. NMM, ADM BP/2, 2 May 1782. The clerks worked in bad conditions; one complained of a "close and smoky office" (ShP, 151, no.87, 2 Sep 1782). This was Robert Gregson, who, between 1777 and 1787, sent nearly 150 letters to Shelburne for money, the occasional gift and eventually, he hoped, preferment. The supply of information (which today would be "classified") to the Opposition was fairly common. Gregson certainly did not consider it unpatriotic, although when another clerk was discovered, he feared for the "ruin of himself and ~~his~~ family" (Add MSS 24135, fo. 72, undated; also fo. 64, 15 Feb 1779). As chief clerk to the Clerk of the Acts, Gregson sometimes attended Board meetings, but unfortunately his comments are so embittered as to be untrustworthy.

Evidence of this is difficult to discern, although Gregson records that Timothy Brett, who was Comptroller of Treasurer's Accounts, "quitted the Navy Board on a contest for power between him and Sir Charles".[1] The basic reason for this friction is less difficult to define; Middleton thought that more seamen should have been on the Board, and that the civilians on the Board did no work. Friction emerged more at the peace, when Howe replaced Sandwich, and was anything but friendly to the Comptroller.

Nevertheless, a vast amount of business was despatched each day. The help of the Extra Sea Commissioners, Edward Lecras and Samuel Wallis, who joined in 1778 and 1780, was undoubtedly responsible for an improvement in efficiency.[2] The Comptroller also managed to reorganise some of the Board's business and accounting at the beginning of 1780.[3] However, the greatest factor was undoubtedly the energy of the Comptroller himself. He was the lynchpin; while he often

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1. Add MSS 24135, fo. 76, 4 Jan 1786. Brett left the Board in September 1782.

2. See NMM, MS66/086, Observations on the Navy Board Department. For Wallis's eventual removal from the Board, see Webb, pp. 171-2.

3. See NMM, MS66/086, Observations on the Navy Board Department; also BL, II, 238,(?) Dec 1786. For instance, some of the Surveyor's technical business was taken away from the full Board (PRO, ADM 106/2790-94, Surveyor's Office Minutes, 1780-85). Some accounting methods were also reorganised; e.g. the warrants to the yards (PRO, ADM 95/96) were divided into individual sections for each yard, instead of being recorded haphazardly.

complained of this, it must not be forgotten that this situation was largely of his own making. Yet in spite of this, Middleton was continually pressing for more responsibility for the Navy Board, and while the war was still being fought he was thinking ahead to the peace and the improvements which could be made to the system. Taken all in all, his achievement was remarkable; the transport business, "never fell hopelessly into arrears",[1] and the business of the yards was carried out with a speed that was exceptional for the age.

iii) Orders and Instructions

The control of the yards was in the hands of the Navy Board. For all routine purposes, the Admiralty worked through the professional board, although the Visitations provided the First Lord with his only direct method of control. These visits were brief and superficial, since the yards received a warning of the Board's arrival, and inspection consisted only of a perambulation of the yard. The Navy Board's method of

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1. Syrett, p.36.

control was through warrants (orders signed by at least three members of the Board), of which there were two types. The Standing Orders, or General Warrants, were issued to provide precedent; ordinary warrants, on the other hand, contained only specific orders. The Board's authority was also taken to the yards themselves through the office of the Outport Commissioners, members of the Board, who were resident at Chatham, Portsmouth and Plymouth.

The structure of the organisation which controlled the yards was overcentralised and under-regulated. Since the Instructions were obsolete and vague, the Navy Board had to give guidance in far too many situations to yard officers who were not sure of their position. Yet the Board was unwilling to allow any degree of authority to the yards themselves. The Commissioners resident at the yards had no power to initiate orders, except in ill-defined cases of emergency.[1] Nothing could be done without submitting a proposal (and where necessary, an estimate) to the Board, and only from the ensuing warrant were the yard officers empowered to undertake any task. The result of this unwillingness to devolute authority was an overworked

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1. PRO, IND 9315, 15 Mar 1669. "Commissioners to the Outports...have power, in cases of Exigency, to do whatever might or ought to have been done by the [illegible] Board".

Board; Middleton recalled that:

> The correspondence, from the great increase of the fleet, was very voluminous, and the business, from its variety, inexpressibly intricate ... If to this be added a correspondence with upwards of 2,000 correspondents, the surprise will not be that things were hastily done. 1

In 1778, the year that Middleton joined the Board, just under a thousand warrants were issued to the yards, three times more than in peacetime. With the other business of the Board, and the innumerable letters to the yards, it is not surprising that Middleton was concerned about "hasty decisions".[2] Moreover, a communication took from three to four days to reach Plymouth, and one or two days to reach Chatham and Portsmouth. At a minimum, therefore, the Plymouth Officers had to wait a week for an answer to a request. This problem did not arise with the Thames yards, but the disadvantage in this case was that the Board had to deal with the day-to-day trivia of the two yards, which, from the evidence of the Board minutes, took up an amount of time disproportionate with its importance.

Much of this enormous bulk of correspondence can be

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1. BL,II, 236-7,(?)Dec 1786, Memorandum to Baring.

2. ibid. In 1774 there were 317 warrants to the yards; in 1778 there were 946 (PRO, ADM 95/95). For every warrant sent by the Board, it sent approximately eight letters on yard matters.

ascribed to the lack of regulation in the yards. Any business that was not covered by precedent or the regulations was automatically referred to the Board. Not only did the yard organisation have little initiative, but the system was not sufficiently organised for the officers to understand what they had to do in enough given situations. This was the result of the confusion over the Standing Orders and Instructions; in an organisation guided only by precedent, even the precedent was disorganised. The theory was simple. Each officer in the yards had his orders laid down. From time to time these instructions would be changed by Standing Orders from the Navy Board. In practice this had all but broken down. The Instructions extant at the time of the American War had been issued in 1662.[1] Since that time Standing Orders had been issued with little plan, and the modifications had been piecemeal and contradictory.[2]

The Standing Orders covered all aspects of yard administration. Orders concerning personnel included regulations laid down to combat abuses, standards for entry and discharge, pay and allowances, and, in this period especially,

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1. These instructions dated originally from 1640, and had been revised, not formulated, by Pepys. See J.R. Tanner, A Descriptive Catalogue of...the Pepysian Library, (NRS,1903), I, 20.
2. One exception was the partial codification which had taken place after the 1749 visitation.

for task work. There were technical orders introducing new techniques, economy measures and orders concerning the preservation of ships and stores; a large number contained establishments of stores and instructions on work methods. These orders were the only official means of modifying the system. Until Middleton used them after the war, they were issued only, "to meet each present difficulty as it arose, perhaps without having the least reference to the general principle on which they had been at first established".[1] Frequently they were used only to reiterate former orders which had been abused; often the issue of an order involved the changing of an earlier one, but the Board did not concern itself with seeing that this was done. There were, as a consequence, many contradictions.

Not only were the Standing Orders inefficiently issued, but there seemed to be a large amount of confusion over what exactly constituted precedence. Between 1774 and 1783 at least thirty of these orders were issued which could not possibly have set any precedent at all. An illustration of this confusion is provided by the existence of the Plymouth Commissioner's Precedent Book, which records all communications from the Board which could be used for future guidance.[2]

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1. BL, II, 225, 18 Sep 1786, Middleton to Pitt.

2. PRO, ADM 174/283, Abstract of Orders in the nature of a Precedent Book, 1697-1807.

Successive Commissioners not only omitted those Standing Orders which failed to do this, but also entered extracts from ordinary warrants from the Board, and even from their informal letters. It is evident that the precedent considered valid by the Commissioners at Plymouth was different from that issued by the Board.

The 1662 Instructions were the only regulations issued to the officers of the civil administration until the Commission of Naval Revision issued a set of printed instructions in 1806.[1] The original instructions laid down the general principles and duties of the Commissioners of the Navy Board and the Principal Officers of the yards. The boatswain, porter and officers of the ordinary were also included, but there were no instructions for the Master Shipwright's Assistants or for any of the officers below them - they had to rely on word of mouth; those for the Resident Commissioners were also omitted. It must be presumed that these instructions were circulated, for they were printed in 1717 and 1757;[2] but by the end of the century they were ignored, for by this time they were not only incomplete but, in most of the areas that they covered, they were obsolete.

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1. PP-CR, The Commission of Naval Revision, 1805-6, First and Second Reports.
2. The Oeconomy of His Majesty's Navy Office (London, 1717) and John Entick, A Complete View of the British Marine, (London, 1757). The instructions printed in these volumes (both unofficially published) are identical. By contrast, the instructions issued to sea officers were in constant use, and by 1772 had reached the eleventh edition.

The individual statements to the Commission of Naval Enquiry in 1803-4 indicate that they had ceased to be issued.[1]

The fact that the original instructions were outdated might not have been significant had the subsequent Standing Orders been revised and systematised. The evidence of the Clerk of the Cheque at Plymouth to the Commission of Naval Enquiry can be considered as typical of the second half of the eighteenth century:

> Question: Can you collect, readily and distinctly, by reference to the books and papers in your office, the instructions and intentions of the Navy Board on every particular branch of your duty?
>
> Answer: It is very difficult to be done, owing to the multiplicity of orders, and the succeeding warrants contradicting the former ones sometimes in part, sometimes in whole. 2

The need to revise the enormous number of Standing Orders was first recognised in June 1764, during Egmont's administration, and the Admiralty ordered the Navy Board to remedy the situation. Three months later the Admiralty received all the Standing Orders that the professional Board could find, and by April 1766 the Navy Office had prepared a chronological collection. By June

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1. PP-CE, Appendices Nos. 1, 5, 12, 13, 75, 169 and others.

2. PP-CE, p.154.

1767, the Admiralty, now under Hawke, ordered the Navy Board to

> proceed immediately to arrange and digest the said orders...under proper heads, so as to compose one uniform body and system out of the whole...(and)...to transmit the same...to us for our approbation, it being our intention that the orders and instructions, so arranged and digested, shall...be printed, and thereby made more generally known. 1

In spite of Middleton's efforts after the American War, the dockyards did not receive these printed instructions until 1806. The early failure to proceed with the Admiralty's orders was due to Navy Board lethargy. Middleton himself was unable to do anything until after the war, by which time the need for a radical reorganisation of the orders had become only too apparent. Between 1774 and 1784 the Navy Board apparently issued more than half as many orders again than in the hundred and twelve years since the original instructions.[2] In the two years after the war, when Middleton put most of his efforts into reform, the Board issued over three hundred and fifty. Not only were there more orders, but they were longer and more

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1. PRO, ADM 106/2507, Introductory letter in the compilation of the Standing Orders, 1660-1756. The suggestion, according to the Secretary of the Admiralty, Philip Stephens, had originally come from Charles Jenkinson when he was on the Board. See PRO, 30/8/365, fos. 163-4, (undated 1788?), Middleton to Lord Chatham.

2. PRO, ADM 106/2507-9. From 1658-1773 650 orders were issued; from 1774-1784, 931. Due allowance must, of course, be made for early orders lost in the later compilations.

complicated; certainly they were more skilfully and accurately drawn up. Middleton realised that what was needed to bring order out of this chaos was a comprehensive digest of the orders combined with the original instructions, which would render obsolete all collections made to that date. In 1786 he wrote to Pitt:

> At present we have no fixed rule of government in our dockyards. Length of time and change of circumstances have occasioned such an accumulation of contradictory orders that the officers if inclined to do well are not furnished with the proper informations, and if otherwise - they find so many holes to creep out at that it is beyond the powers of office to counteract them. 1

The Comptroller therefore made out a comprehensive abstract under five heads. This was a considerable undertaking, as he did not fail to point out to Pitt: "This abstract has not only occupied all my leisure hours since the commencement of the peace, but engaged much of my attention in preparing materials for it in the war".[2] Not only had Middleton to digest all the Standing Orders and Instructions issued until the 1780's, but he also had to find out the duties of the"inferior officers"for

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1. PRO, 30/8/111 (part 2), fos. 151-2, 24 Aug 1786; see also BL, II, 225-8, 18 Sep 1786, Middleton to Pitt.

2. BL, II, 224, 23 Sep 1786.

whom there had never been any instructions.[1] According to Commissioner Proby, the "lowest classes of officers" were "to let the Board know what they themselves thought to be their respective duties". However, "they had no other conception of their duty than to follow the directions of their respective officers", and that, as Proby thought, "put an end to the plan".[2] The difficulty of compiling a central body of instructions, for the inferior officers especially, is shown by the enormous amount of work undertaken by the Commission of Naval Revision in 1806. Using Middleton's abstract of the 1780's, it sent each officer "a deduction of what they supposed their duty to be", but,

> those officers had formed very different conceptions of their duties... Indeed, it has been observed by some of themselves, that an officer who had served half his life in one dockyard, if removed to another would find himself nearly as much at a loss to know his precise duty as if he had never been in the service. 3

After a great deal of trouble and much consultation, the Commission made the final draft, and the yards received their

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1. Evidence of Middleton's industry, and that of his clerk, Mr. Harding (see PRO, 30/8/365, fos. 163-4, 1788 (?), Middleton to Lord Chatham) is provided by the existence of a large, very rough volume (PRO, ADM 49/54) which contains all the orders and instructions from 1660-1784, and the draft of his abstract. In a letter to Pitt of 23rd September 1786 (PRO, 30/8/III (part 2), fos. 160-1; also BL, II, 224) Middleton refers to having only one legible copy of his abstract. It is reasonable to assume that this volume is the illegible copy. See also Add MSS 41079, fos. 119-20, 21 Feb 1805, Middleton to Dundas.

2. NMM, CLU (8), 17 Aug 1794, Proby to Locker; also Add MSS 41079, fos. 107-8, 12 Nov 1804, Thomson to Melville. See also Middleton's comment on the Navy Board visitation (PRO, ADM 106/3222, 18 Jul 1785).

3. PP-CR, Second Report, p.4.

printed orders forty-two years after the original Admiralty order.

Middleton failed in the 1780's where the Commission of Naval Revision succeeded because he could not obtain political support. Since the original instructions had been issued by Order-in-Council, a reissue would require the same procedure. He submitted his Abstract to Howe, but due to his impossible relations with the First Lord, it languished there for two years without the Comptroller being able to do anything about it. Pitt, embarrassed in turn by the Commission on Fees and the Regency Crisis, would do nothing to help him.[1] All that he was able to do was to send to the yards a chronological abstract of the Standing Orders, with a promise that the "General Collection" was in preparation.[2] Eventually, however, his efforts were rewarded, for in 1805 he headed the Commission of Naval Revision and, using his abstract, was able to remedy what he saw as being the great weakness.[3] In the centralised structure of the civil administration, the Navy Board could not be expected to know the

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1. For a detailed account of the Comptroller's pressure on Pitt, see Webb, pp.183-188.

2. SO(b), 364, 29 Mar 1785.

3. That Middleton dominated the Commission is proved by the fact that the final format of the printed instructions corresponds almost exactly to his rough abstract of the 1780's (PRO, ADM 49/54). See also Add MSS 41079, fos. 107-8, 12 Nov 1804, Thomson to Melville. The Commission of Naval Enquiry had also drawn attention to the lack of orders (PP-CE, p.6.).

idiosyncracies of each yard, and the result of this was a lack of Navy Board control. Middleton had always striven for this control; the aim of the Commission, in its own words, was "to make each dockyard serve as a part only of one great machine".[1]

iv) The Resident Commissioners.

The final agencies for controlling the yards were the Resident Commissioners at Chatham, Portsmouth and Plymouth in their roles as supervisors and as correspondents with the Board.[2] Even if the orders and instructions had been put on an efficient footing, the Navy Board warrants would still have had to have been complemented by communication between the Board in London and the members of the Board resident in the yards. These three Commissioners were the only official channel of communication between these yards and London, and

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1. PP-CR, Second Report, p.4.

2. Sheerness was under the supervision of the Chatham Commissioner, while Deptford and Woolwich were directly administered by the Navy Board. For a list of these Commissioners see Appendix I.

all letters and warrants passed through their offices.[1] Orders were not given to them, but through them. The Commissioners, in turn, replied to the Board with confirmatory letters, and passed on the day-to-day proceedings of the yards.[2] Their responsibilities, however, extended beyond mere communication, for they exercised theoretical Navy Board control as supervisors of the yard.

The post of Outport Commissioner could never have been an easy one, for the position in the naval hierarchy had never been clearly defined.[3] The combination of vague orders and the difficulty of taking the initiative failed to make the post an effective branch of the Navy Board. The first problem was an equivocal social position in the Navy. The Commissioner held a captain's rank, having risen through the military side of the service, and had given up a life at sea through ill-health or because he no longer anticipated further

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1. These officers did in fact correspond directly with the Admiralty, but their letters concerned only minor matters, such as acknowledgements for packets received for commanders, warrant officers and occasional information on sailings and dockings. See NMM, POR/H/10-12, 1774-1788; CHA/X/2, 1774-1791; PRO, ADM 174/173, 1776-1784; also NMM, CLU (8), 17 Aug 1794, Proby to Locker.

2. This correspondence reached very large proportions, although it varied from yard to yard, and from peacetime to wartime. In peacetime, the Portsmouth Commissioner sent an average of one letter a day. Chatham averaged twenty a month, and Plymouth fifteen. By contrast, in September 1778 the Plymouth Commissioner received sixty letters and warrants (PRO, ADM 174/17).

3. See Ehrman, p.101; Baugh, pp.289-291.

promotion. In the American War there were some exceptions to this rule. Samuel Hood saw the Commissionership at Portsmouth as a step to promotion because of the complicated political situation. He justified his acceptance of the post by his "accomodation" of Sandwich's arrangements, while there was the additional excuse of his "well-known bodily infirmities".[1] When Gambier wanted to leave the Commissionership at Portsmouth in 1778, he showed the fighting officers' distaste for the non-combatant post:

> I cannot but wish to emerge from this temporary state of servility so notoriously humiliating to an officer of liberal sensibilities and to be restored to my natural line from which I had the very hard fate to be superseded. 2

It was this attitude that made the task of the Commissioner particularly difficult, for the sea officers were his concern. As the representative of the Navy Board, he was responsible for co-ordination between sea and dockyard officers.

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1. G,IV, 185, 9 Aug 1778, Hood to the King; see also NMM, SAN/T/8, 8 Mar 1780, Hood to Sandwich. For a detailed examination of Hood's motives in taking the Commissionership and his hesitation in giving it up, see G.A. Billias (ed), George Washington's Opponents, (New York, 1969), pp. 297-300, 321; essay by D.A. Baugh, "Sir Samuel Hood".

2. NMM, SAN/T/8, 20 Jan 1778.

There was a similar situation in his relations with the officers below him in the yard. They were the technical and clerical experts; in the matter of producing ships, he was an amateur in charge of professionals. His knowledge of seamanship was designed to complement the skill of the yard officers but it often led to clashes, especially with the Master Shipwright.[1]

These difficulties were minor, however, compared to his professional problems. The powers of a Resident Commissioner had always been vague; as he was not included in the 1662 Instructions, there was almost nothing to guide him. When Commissioner Martin was questioned at Portsmouth by the Commission on Fees he stated that his duties could only "in some measure be understood from the books of the office".[2] Proby wrote in 1794:

> I have been here twenty-three years and have never seen my instructions yet. When Sir Charles Middleton was Comptroller I applied for them; the reply I received was to search the records of my office as far back as I could. 3

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1. See Albion, p.71. However, this system avoided the extreme ill-feeling between the administrative and fighting officers of the French Navy; see A. Temple Patterson, The Other Armada, (Manchester, 1960), pp.22-30.

2. PP-CF, p.408.

3. NMM, CLU (8), 17 Aug 1794, Proby to Locker.

The vagueness had been a matter of concern from the seventeenth century, and the question came up in the three Commissions into naval affairs between 1788 and 1806.[1] That this situation was the concern of the highest authority is proved by a letter to Martin from Middleton in 1781: "I had the pleasure of answering the King's many questions yesterday relative to Portsmouth yard and particularly on the subject of a Commissioner's duty".[2] When a Commissioner wished to receive some guidance, his only source was the mass of confused and unindexed Standing Orders, few of which had any direct bearing on his position.[3]

Much of the ineffectiveness of the Commissioner can be attributed to imprecise orders, as well as an accumulation of extra duties in the yard, but his position was made even less effective by his lack of initiative. It is difficult to see where the power of the Commissioner lay. He was a member

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1. PP-CF, p.306; PP-CE, p. 4; PP-CR, First Report, p.17.

2. Add MSS 41364, 29 Mar 1781.

3. When Middleton attempted to systematise the Standing Orders, he could find only two definitions of the Commissioner's duties. One was a short Standing Order of 1669; the other a commission to Phineas Pett, dated 1686 (PRO, ADM 49/54). The orders from this source correspond in broad outline to the duties recorded in the Commission on Fees.

of the Navy Board, but, perhaps naturally, the rest of the Board in London were inclined to consider him as inferior.[1] In Baugh's opinion the function of the office was "more nearly advisory than executive",[2] but in theory, at least, he was to advise the Navy Board, at the same time be responsible for seeing that its orders were carried out. The paradox of the situation was that, while the orders were not given to him, he was responsible for them to a Board which was equal to him in seniority, and of which he was a member. Mulgrave wrote to Sandwich in 1781:

> I wish...that the Commissioner residing here had in many instances more power left in his hands, and that the whole was not so entirely engrossed by the Navy Board, as the necessity of writing up for directions from thence upon every trivial circumstance occasions great delay. 3

Mulgrave pointed in this instance to one of the gravest weaknesses in the authority structure of the yards. Although there were occasions when a Commissioner had to act first and

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1. See Baugh, p.290; also

2. ibid, p.293; see below p.72.

3. SaP, IV, 381, 23 Feb 1781. For the clearest statement of the Commissioner's position see PP-CR, First Report, pp. 17-18.

consult later, (especially at Plymouth), the rule was for the Board in London to decide on the most trivial matters, and as an executive arm of the Navy Board a Commissioner resident at the yard was less effective than it could and should have been. His position was also weakened by lack of seniority; in relation to many commanders, he was a junior officer and he could hardly be expected to judge a request for extra stores from a senior officer; the combined weight of the Board was needed in these cases.

The main reason for his lack of power, however, was that it was in the Navy Board's interest to keep the system informal, and to have an equal as representative as the yards. Proby understood that "the several Comptrollers have objected to let the Commissioners at the Outports have the said Instructions".[1] This reluctance to delegate authority can be explained by a history of bad relations between the Board and the Resident Commissioners. Middleton wished that the Commissioners to serve on the Board for one year, so that, "they would enter on their office properly instructed in their duty, and be ready to co-operate with the navy board, which under the present arrangement has not always been the case".[2]

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1. NMM, CLU (8), 17 Aug 1794, Proby to Locker.

2. BL, II, 181, 17 Nov 1784, Middleton to Howe.

A Commissioner with more initiative might have lessened the Board's influence, and it was a risk that the Commissioners of the Navy Board in London were not prepared to take.

Fortunately, during the war years, there was only one exception to the general rule of a healthy relationship between the Navy Board and the Commissioners resident at the yards. In spite of the tactlessness of Middleton, there was little of the friction of previous years.[1] With the exception of Hood, the Commissioners were not officers of the highest calibre. Most of them had difficulties with their health. Gambier complained at different times of a "violent bilious"attack' , and a "violent fit of the gout", while Hood and Martin both had similar problems.[2] Ourry at Plymouth was the worst afflicted. Already well into his sixties when the war started, his health grew progressively worse.[3] There were long periods when he was unable to sign letters because of gout in both his hands. Whenever it was possible, which was not often, he took himself off to his house in nearby Plympton. By the end of 1782, he was very ill indeed and Edward Lecras, one of the Extra Sea Commissioners at the Board, went to relieve him.

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1. See Baugh, pp. 289-91.

2. NMM, POR/F/15, 15 Sep 1774, 7 Mar 1775; SaP, IV, 380, 23 Feb 1781, Mulgrave to Sandwich.

3. In a letter of 21 Aug 1779 he stated that he had been 51 years in the service (PRO, ADM 174/116).

Ourry died within five weeks.[1]

These serious limitations apart, the Navy can be said to have been well served by its Outport Commissioners. The one exception was James Gambier, who served in the Portsmouth post before (fortunately) the war began in earnest. It would not be unfair to say that Gambier went out of his way to find trouble, and that from the beginning he was out of sympathy with, as he pointedly called them, his "brethren at the Board", because he considered them socially and professionally inferior. The Commissioner's house, "without a single room to dwell in with any... comfort", remained a bone of contention throughout his Commissioner-ship.[2] While he professed to, "avoid as much as possible every-thing which may have the remotest tendency to produce a difference of opinion" with the Board, the smallest issue became part of a constant fight to maintain his conception of his dignity not only in relation to the Board but also to the yard officers. "In what unbecoming, humiliating light must the Commissioner appear to the subordinate officers here!", he wrote in 1776, "the Commissioner..owes too much to his own character and dignity ever to be himself accessary..to the dimunition of either"; the

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1. PRO, 174/117, 15 Jan 1780. In 1782 he asked the Board to have the frames of his window lowered, "that I may look over the lower part of them, as I cannot stand upright, to see the workmen come into and go out of the yard". (ibid, 7 Ap 1782). He died on 31 Jan 1783. See L. Namier and J. Brooke, The House of Commons, 1754-1790, (London,1964), III, 240.

2. NMM, POR/F/15, 31 Jan, 5 May, 10 July 1774.

issue in question was the water supply to the Commissioner's house, which can hardly be considered to have been of central importance.[1] What would have happened under the real pressures of war is difficult to foretell, although one can be sure that Gambier's many periods of leave, "for private business in Town", would have been stopped by the Admiralty. After the disastrous fire in the ropehouse of late 1776, for whose security the Commissioner was responsible, relations became almost impossible. It was fortunate for Middleton that Gambier, with whom he was connected by marriage, was gone to a sea command before he took up the Comptrollership.[2]

The navy was more fortunate in Gambier's two successors, Samuel Hood and Henry Martin. Hood took over at the beginning of 1778, a vitally important time. Helped by a strong political base in the town,[3] and a firm friendship with Middleton, he immediately gained the respect of the officers and the Board;

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1. NMM, POR/F/16, 15 Feb,12 Sep 1776. Other issues included the unauthorised issue of iron ballast (ibid, 15 Feb, 1 Mar 1776), the appointment of the Deputy Purveyor (ibid, 3, 6 Nov 1776), and writing direct to the Admiralty (ibid, 31 Dec 1776; POR/G/I, 31 Dec 1776). There were many more.

2. Gambier's performance at New York soon afterwards demonstrated that his feeble posturing was not confined to the civil arm of the service. See the collection of scathing professional and loyalist opinion gathered in G.A. Billias (ed), George Washington's Opponents, pp.264-266, essay by William B. Willcox, "Arbuthnot, Gambier and Graves".

3. Edward Linzee, nine times Mayor of Portsmouth and Hood's father-in-law, informed Sandwich that Hood's appointment had "caused no small pleasure to all our political friends" (NMM, SAN/T/8, 25 Jan 1778).

he was also firm in his dealings with Thomas Pye, the Port Admiral. It was fortunate that he was the Resident Commissioner at the height of the faction in the Channel Fleet, for Hood's non-political stance was well known in the service. He brought to the dockyard the energy and singleness of purpose which marked his fighting career. "Hood's attitude was thoroughly professional; in his day it was admired by many, but adopted by few".[1] Indicative of this professional approach, and in contrast with his predecessor, Hood had no leave from the yard during his stay of nearly three years. When he gained his flag, the post was occupied by Henry Martin, an efficient, if somewhat colourless, man, who eventually followed Middleton as Comptroller. Only occasionally were these two goaded into protests by the Board, usually prompted by the latter's impractical suggestions.[2]

The other two Commissionerships were filled throughout the war by one occupant. Charles Proby, out of the limelight at Chatham, went solidly on through the period and beyond, but a clear impression of him is difficult to gain because of lack of evidence. At Plymouth Paul Ourry lacked confidence, and tended to be excitable, but he was almost ingratiating in his

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1. G.A. Billias (ed), George Washington's Opponents, p.319; essay by D.A. Baugh, "Sir Samuel Hood".

2. e.g. NMM, POR/F/17, 15 Mar 1779, 28 Dec 1779; POR/F/18, 13 Jan 1783.

efforts to be on good terms with the Board. The few differences which occured usually brought from Ourry no more than a reaction of pained indignation.[1] Further from London than the other two Commissionerships, he had more responsibility and had to take more initiative. Although his performance during the Plymouth Panic of 1779 has given him a bad name, his lack of instructions and the vagueness of his position has not been sufficiently emphasized.[2] It has also been forgotten that he handled the particularly violent strike of 1775 with a good degree of common sense. Both these men went through the war with much hard work under considerable pressure - and with little thanks.

As with the rest of the administration, the role of good personal relations in keeping the administrative machinery running smoothly was of pre-eminent importance. While it was true that the interest, skill and enthusiasm of the Commissioners were still the most important factors in their effectiveness, it became increasingly more inefficient to have them in office without instructions and greater authority within the service.

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1. e.g. PRO, ADM 174/116, 23 Jun, 9 Aug 1778, 22 Jun 1779; 174/18, 19 Jun 1779.

2. See PRO, ADM 174/116, 20, 23 Jul, 21 Aug 1779. See A. Temple Patterson, pp. 182-183, 186-189. It might also be said in extenuation that Ourry's gout got progressively worse, and it may have led to irritability and over-excitement.

The increased power and responsibility needed to administer a larger navy had not been evenly spread, and the dockyards had become more and more pressed. Not the least of this pressure was pinpointed upon the Commissioner's office; he gained more and more responsibility, without a corresponding increase in power. It was thus up to the Commissioners resident to make themselves effective as an executive arm of the Navy Board in spite of their position rather than because of it. Ironically, when they did, they tended to identify themselves with the yard for which they were responsible instead of with the Board of which they were members. Overworked, largely unappreciated, indirectly they set the tone of their yard; the three Resident Commissioners were vital in the dockyard administration.

v) The Effectiveness of the Central Administration

It was a curious feature of the civil administration during this period that while the Admiralty and the Navy Boards were overcentralised and often overpressed by the weight of work in supervising the dockyards, at the same time the two boards lacked real authority in the yards themselves. Of course, the slowness of eighteenth-century communications precluded complete

control of all the works in the yards. The system was over-centralised because only the London boards could initiate orders; there was virtually no executive responsibility taken below the level of the Navy Board. The result of this was that an extraordinary amount of trivia reached the boards, when their collective minds should have been on more important things. For instance, on one occasion the Admiralty Board had to decide whether or not a domestic servant of Sir Henry Clinton, the army commander in North America, should receive victuals on board a transport going to America; or there was the example of the Navy Board having to decide whether or not to allow a ship "double hen coops" because she was carrying army officers to America.[1]

The reason for such decisions needing the highest authority was that they were not covered by a precedent. Yet, because it was virtually impossible to remove those in authority at the yards for incompetence, or even senility, it was very difficult to allow them personal responsibility for such decisions. In an age when the sanctity of office was almost total, it was perhaps necessary to have a situation where everything had to be approved in London. Only by an almost complete lack of a diffusion of executive power could the Navy Board insure

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1. NMM, ADM A/2753, 26 Jul 1780; PRO, ADM 106/2592, 24 Feb 1775. See also Mackesy, p.165; Williams, pp. 19-20.

against irresponsibility and incompetence. In wartime, however, some decisions had to be taken at the yards, and there were "exigency" powers invested in the Resident Commissioner, although they were kept vague. Even then, the central administration shed very little peripheral power. To take an unimportant example, the Admiralty would name the ship which was to take the quarterly money for Plymouth yard from Portsmouth, but once the war had started, it ordered the Port Admiral and the Navy Board to put it on the "first ship to leave for that port". After the war the Admiralty resumed the task of naming the ships. On the same principle, a representative from one of the two boards was often down at the western yards during the war to speed decisions. There was a reluctance to delegate a substantial amount of power even to the Resident Commissioners.

Yet it would be true to say that the Navy Board lacked anything more than formal control over the yards. The things that really mattered were beyond its real authority. Over large parts of the operations, especially the administration of stores, it lacked accurate information; it rarely knew, because of the lack of instructions, which officers did which tasks. Control over the yard officers was based only on mutual confidence, for it needed Admiralty sanction to do so much as to reprimand them. All this was partly the result of not giving the Resident

Commissioner more initiative, but it was also likely to be the situation,

> so long as dockyard officers were thought of as irremovable...The ancient method by which work in the dockyards was regulated had the advantage of flexibility and simplicity. It had the disadvantage of being utterly dependent on the diligence of the Master Shipwright, Master Attendants and their assistants. 1

This was a description of the situation in the 1740's; by the American war the difficulties had been compounded by the greater size of the navy.

The lack of administrative control was paralleled by the weakness of Parliamentary and financial control through the annual Estimates. These were prepared by the Navy Board, and then sent, after revision, by the Admiralty to the Treasury. This was for information rather than for any control; the Treasury had no power to interfere with the Admiralty's finances, "merely acting as book-keeper to that Board".[2] The "Ordinary" estimate catered

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1. Baugh, pp. 331-2.

2. P.K. Crimmin, "Admiralty Relations with the Treasury, 1783-1806", Mariner's Mirror, 53, 1967, p.65. See also J.E.D. Binney, British Public Finance and Administration, 1774-1792, (Oxford, 1958), p.140.

for the seamen and ships "in Ordinary", the salaries of the yard officers and repairs to docks, wharves and buildings. The "Extraordinary"(or "Extra")estimate provided for the building and repairing of ships and the wages of the dockyard workmen.

The Estimates fell far short of being an effective instrument of financial control. Very little idea of the intentions of the Admiralty could be gained from them. Estimated completion dates in the "Extra" estimate for ships building or repairing were extremely inaccurate; only when the ships were within a year of completion were the Estimates anything like correct. In a sample of all seventy-four gun ships for a period of ten years, the accuracy of the Estimates in regard to time was far less than 10%. Two ships were provided for, but were never built. Between 1778 and 1783 £37,600 was granted for building the Caesar; at the end there was no ship. Between 1774 and 1783 there were sixty-six seventy-fours on the navy list, thirty-nine of which received repairs.[1] In the "Extra" estimate for the same years there were fifty-two repair estimates for twenty-seven of these ships. Eleven were repaired - but never appeared on the

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1. Abstract of Progresses, 5, part 1.

Estimate, while there were five that appeared on the Estimate for which nothing was done. Of these, the worst case was of the Dragon, for which between 1771 and 1775 £36,972 was granted; but she was never repaired, and in 1780 became a receiving ship in Portsmouth harbour.[1]

It is not perhaps surprising that the Estimates should be so wide of the mark. It was notoriously difficult for the yard officers, upon whom the Navy Board relied when drawing up the Estimates, to be accurate in estimating anything concerned with wooden shipbuilding on a large scale. Nevertheless, the situation demonstrated the independence of the yard officers. Middleton blamed the "vague, uncertain manner" in which they calculated the Estimates; "and if they find they have made them too small in one year, they swell them to an extravagant amount in the next".[2] They can, however, hardly be blamed for there was little pressure on them to be accurate; and it is difficult to escape the conclusion that the Admiralty and Navy Boards were not much troubled that the Estimates bore so little relation to reality. Similarly, the £4 per man per lunar month had seen the "Sea Service" estimate through from the previous century, and was by now hopelessly inadequate.

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1. PRO, ADM 7/171.

2. BL, II, 214, undated, to Pitt.

This situation in no way hindered operations, for Navy Bills to pay for labour and materials were issued regardless of the amount of money approved by Parliament for the service of the navy in the Estimates. More important to those at the top of the administration, the Estimates were rarely, if ever, questioned in the Commons, and if they were, never in detail.[1] There was the beginning of a change in attitude at this time, although the reply given by Mulgrave to an Opposition attack on the inaccuracy of the Estimates sums up a century of lethargy; "if it was a crime, it was one which had often been practised ever since the reign of James II".[2] Fed with such information, it is hardly surprising that, although the navy was discussed in Parliament frequently and with much heat, criticism of its more technical aspects was ill-informed.

However, the most constant limitation of the effectiveness of the central administration was the split in control between the two boards. During this period there was an extension of Admiralty interest in the dockyards, reversing a trend which had expanded Navy Board influence through the century as the navy had become bigger and more difficult to administer. Although their effectiveness is hard to gauge, Sandwich's Visitations gave the Admiralty some measure of control over the professional

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1. See Binney, p.249. As a result the Navy Debt was nearly 13 millions in 1783 (ibid, pp.140-3; also Add MSS 33741, tabulated sums granted to the Navy, 1775-1807).

2. Parliamentary History, XIX, col. 729.

board. Nevertheless, his interest and knowledge did not eliminate the inherent difficulties of having two boards administer six yards. This can be simply illustrated by the question of the size of the fleet. There was very little planning, except that there was an idea that the fleet should exceed, if possible, the united strength of the Bourbon powers.[1] Both boards kept a list of ships in their care - the Admiralty of those in commission, and the Navy Board of those building and "in Ordinary"; these lists were then added, but, because of the separation of the two boards, never compared. It was not until 1805 that it was discovered that during the previous fifty years a "very considerable" number of ships had been entered in both lists. The reasons for this were simple; while in port the ships had been counted by both the civil and military authorities. The number of ships in the navy were therefore overestimated throughout the period by a considerable amount; nor were they just small ships.[2] The actual results of this constant error was probably small in

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1. See R. Middleton, "The Administration of Newcastle and Pitt; the Departments of State and the conduct of the war, 1754-1760, with particular reference to the campaign in North America", (unpub. Ph.D. thesis, Exeter, 1968), pp. 65-66. Middleton points out that "since reliable information about these navies was usually lacking, planning started in a vacuum" (p.65).

2. PRO, ADM 7/567. In 1775 the total number of ships was overestimated by 18, in 1779 by 58 and in 1783 by 90. Of this last figure 28 miscalculations concerned 1st, 2nd and 3rd rates. The figures were computed from January 1st each year, which may have overemphasised the error, but it was still significant. The error was magnified in the Revolutionary war.

strategic terms, but this error illustrated the lack of co-ordination which could take place in the civil administration of the navy.

The other constant factor in the split of executive control was the tradition of friction which affected the dockyards to a great extent. The pre-eminent importance of good relations between the First Lord and Comptroller is clearly evinced by the occasions when this was lacking. Howe and Middleton were scarcely on speaking terms; the result was the blocking of dockyard reform, and both officers' eventual resignation. During St. Vincent's administration, communication virtually ceased; the result was a Parliamentary enquiry. The marked social difference of the boards and the difficulties of appreciating each other's problems meant that good relations were dependent upon a bond of professional confidence within the vague and antiquated machinery of the civil administration. Without a healthy relationship, nothing could be done which was not established or routine.

It is within this context that the relationship of the professional board with the six dockyards must be seen. To this time it was dominated by two opposing ideas. A reluctance to delegate authority conflicted with a need to increase the control of the Board over the yards. Yet without

a clear idea of the workings of the yards, which could only come through a systematically-enforced body of regulations, the Board never had the confidence to allow authority away from London. It was only this solution which could reconcile these two factors, and which could solve the problems of the overwork of the Board and the ineffectiveness of the Resident Commissioners.

Chapter Two. The Internal Administration of the Yards.

i) The Resident Commissioner and the Principal Officers.

The internal affairs of the yards were conducted by the Resident Commissioner, who had a loosely-defined authority over the five principal officers; these officers controlled day-to-day administration in the yards. The Master Shipwright and the Master Attendant controlled the workforce and represented the technical expertise, while the Clerk of the Cheque, the Store-keeper and the Clerk of the Survey were the clerical officers responsible for mustering, accounting and the issue and reception of stores.[1]

It was the responsibility of the Commissioner to see that the orders from the Navy Board were given to the officers. He was to see that a record of the orders was kept, and that the officers carried them out. Every communication was to go through his office, so that, "he may have full knowledge thereof, as he is to be responsible for all affairs under his superintendance and management at the yards".[2] Discipline and general efficiency

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1. See Appendix II for a list of these officers between 1774-1783.
2. PP-CF, p. 306. The purpose of this was "so that no-one may plead ignorance" (PP-CR, First Report, p. 19). See also PRO, ADM 174/214, Entry Book of...Instructions to the Respective Officers, 1803-4. In this volume the issue of orders had been formalised; each entry is signed by both the Commissioner and the officers. This was not done at the time of the American War, although Proby issued 'warrants' to the Chatham officers (see NMM, CHA/S/1).

were under his charge. An early order stated that the Commissioner was to keep the officers to their duty and punish neglect and misdemeanours by "mulct or suspension",[1] and he was to report to the Navy Board on their behaviour, and approve of all appointments that they might make.[2] At the same time a strict eye was to be kept on the workmen. He was also responsible for the security of the yards and of the ships in Ordinary.[3]

While the broad functions of the Resident Commissioner had maintained continuity through the century, pressure of events had diverted his attention away from his essential role as a cog in the administrative machine. There was a great deal of work involved in negotiating local contracts. Although this duty had been long established, the increase of business by the second half of the century had made this a major task. The Chatham Commissioner spent more time than he could afford in the administration of the Chatham Chest, while his counterpart at Portsmouth had duties at the Naval Academy. At Chatham and Plymouth the Commissioners had to visit the seamen's hospitals, and all three were responsible for the distribution of pensions to seamen, and were in charge of those coming off decommissioned ships.

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1. PRO, ADM 49/54, commission to Phineas Pett, dated 1686.
2. PRO, IND 10665(36c), 31 Mar 1705.
3. PRO, IND 9315, 21 Dec 1686, 30 Dec 1730, 5 Nov 1764.

The most time-consuming extra duty that they had acquired, however, was the overseeing, or "comptrolling", of the payment of seamen from the ships that were at Spithead, Plymouth Sound and the Nore. There was an allowance of two pounds a day for this onerous task, and a simple calculation from the Commission on Fees proves that each Commissioner spent long periods absent from his yard.[1] "I must confess", wrote Ourry, "that payments are the most disagreeable part of my duty",[2] while Martin observed to the Commission on Fees that,

> the duties of his situation in time of war are very arduous; this port being the general rendezvous of the fleet, occasioned almost a daily attendance at Spithead, for paying the several ships companies...often occupied the whole day, and consequently impeded the execution of the other essential parts of his duty. 3

To add to the Commissioners' discomfort, lack of cash created delays which in turn resulted in a fatiguing rush of work; on several

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1. In 1784 Martin spent 25 days at Spithead, but averaged "in former years" over 100; Laforey at Plymouth "averaged" 50, while Proby was away from Chatham for a total of 75 days during 1784 (PP-CF, pp. 408, 446, 364). This allowance had to cover expenses. Ourry reported that at yard payments, "I give the clerks constantly two dinners sometimes three at my house" (PRO, ADM 174/116, 21 Jul 1778; also NMM, POR/G/1, 2 Sep 1778).

2. PRO, ADM 174/116, 21 Jul 1778.

3. PP-CF, p.408; Martin's solution was that someone else should do this task. See also SaP, IV, 380, 23 Feb 1781, Mulgrave to Sandwich.

occasions the Navy Board had to send one of its number down to Portsmouth to help.[1]

In response to requests from Proby and Hood, the Admiralty gave the three Commissioners authority to send the yard officers to comptrol the pay when they themselves were ill.[2] The Navy Board gave only reluctant consent to this measure, for it feared that employing the yard officers, "frequently upon this duty would be attended with much prejudice to the service of the yards".[3] There was, almost inevitably, a minor outburst of ill-feeling eighteen months later when the Admiralty discovered that Gilbert, one of the Master Attendants at Portsmouth, had been comptrolling the pay when Commissioner Martin was 'upon the spot".[4] The Navy Board passed on the Admiralty's order forbidding this to Martin, to which Mulgrave, who was at Portsmouth in his capacity of captain of the Courageux (74) rather than as a Lord of the Admiralty, took great exception. He thought that this "kind of reprimand" was unjustified, put forward proof of Martin's diligence, and suspected, as he wrote to Sandwich, that the order was "some Navy Board trick"; he did not know that it was the Admiralty which

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1. e.g. NMM, POR/F/17, 9 May, 11 Dec 1779, 29 May 1780; POR/F/18, 7 Jan 1783; POR/G/1, 7 Sep 1781; PRO, ADM 174/115, 5 Jul 1774; 174/116, 21 Mar 1779.
2. NMM, ADM B/199, 6 May, 30 Aug 1779; A/2742, 25 Aug 1779; A/2743, 1 Sep 1779. One of the Master Attendants at Plymouth comptrolled the pay for the ailing Curry from the middle of 1781 until December 1782.
3. NMM, ADM B/199, 7 May 1779.
4. NMM, ADM A/2760, 14 Feb 1781.

had brought the matter up in the first place.[1] Although this incident was of little consequence, it illustrated the reluctance of the central administration to allow the spread of authority below Navy Board level, and demonstrated how little both boards appreciated the problems of the hard-pressed Commissioners.

In these circumstances, the Resident Commissioner did not have adequate time to supervise the yard officers in their task of the day-to-day administration of the yards. Like the members of the Navy Board, each officer had his own area of responsibility (and was responsible to the relevant Commissioner on the Board), but reached general decisions on such matters as allocation of labour, discipline, entry and discharge collectively.[2] All accounts and returns to the Navy Board had to be signed by all the officers; likewise all general orders from the Board were addressed to "the Respective Officers" of the yard. The accounting system followed similar lines; the system of multiple ledgers, "or compter books", in the administration of stores, was such that each officer had to check on each other.

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1. ibid, 19 Feb 1781; SaP, IV, 380-1, 23 Feb 1781.

2. The Master Shipwright, Master Attendant and Clerk of the Survey were responsible to the Surveyor, the Clerk of the Cheque to the Comptroller, and the Storekeeper to the Comptroller of Storekeeper's Accounts.

This enforced co-operation and co-ordination was essential to the smooth running of the yards, for the principle of collective responsibility spread duties among them so that no one task was performed by one officer. The smallest piece of business could not be completed if co-operation was not forthcoming. Only occasionally was there friction. In 1775, disagreement among the Woolwich officers resulted in a Navy Board enquiry. The complaint was that a contractor's bill for payment could not be made out because the Clerk of the Cheque would not send the bill to the other officers for confirmation and signature, in spite of Standing Orders and verbal instructions from the Comptroller. These orders, the Clerk of the Cheque stated, he had thought, "not sufficient, that he was not safe in following them, and that it was an infringement on his office".[1] In spite of the arguments of both parties, and the Clerk of the Cheque's case was very weak, the quarrel was clearly the result of some personal antagonism. Daniel Baugh's findings in the war of 1739-48 corroborate this judgement; "these rare instances suggest that personalities, rather than policies, were likely to be involved".[2]

The social and professional backgrounds of the five officers were varied. Only the Master Shipwright rose through the

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1. PRO, ADM 106/2592, 28 Ap 1775. The Clerk of the Cheque was "severely admonished".

2. Baugh, p. 294.

yard organisation. Earlier in the century, the way up through the service for the ambitious shipwright had been as a ship's carpenter, but by now shipwrights rose entirely within the yard service. Each shipwright officer worked his way up from the position of apprentice. Although there was no officer class, only the favoured reached the rank of officer.[1] By contrast, the Master Attendants, who were responsible for shiphandling and rigging, came straight from service at sea.[2] Joseph Gilbert, who filled one of the positions at Portsmouth during the American war, was an example of a master of a ship who, having caught the eye of his superiors, moved to the comparatively affluent and comfortable life ashore. From 1764 he was master in turn of the Guernsey (32), Pearl (32) and Asia (64), engaged on surveying work. In 1772 he was appointed Master of the Resolution on Cook's second voyage, and on his return was made Master Attendant at Sheerness, and then at Woolwich. He stayed for less than a year at both these yards before moving to the more favoured yards of Portsmouth (1776-1791) and Deptford (1791-1802). Gilbert came to the notice of Sandwich through his connection with Cook, and he was undoubtedly an able man.[3] Merit was important in deciding appointments to

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1. See Baugh, p. 296; also Knight, pp. 178-182.

2. Only Benjamin Hunter, the Master Attendant at Deptford (1783-1791) had come to the post in a different manner. From being a boatswain of a ship he was made Boatswain of a yard, and thence to Master Attendant.

3. I am grateful to Mr. Richard Gilbert for some interesting details on Joseph Gilbert's life.

this post; shiphandling in confined waters demanded the highest skill.

On the other hand, political or social connections were the most important considerations for an appointment to the three clerical posts in the yards. These officers came from a number of backgrounds, but rarely from within the yard organisation. Jacob Pownoll, the Storekeeper at Plymouth from 1782, was an exception. Son of Israel Pownoll, a Master Shipwright of considerable seniority by the time of the American war, he was entered as a clerk in the Storekeeper's office at Plymouth in 1746. In 1773 Sandwich appointed him Naval Officer in Gibraltar before Pownoll came back to his old office at Plymouth as principal officer in 1782. He was exceptional because of his connections within the service, for in addition to the advantage offered by his father, his brother was a captain in the sea service, while his brother-in-law was the Resident Commissioner at Chatham, Charles Proby.[1]

It must be presumed that Pownoll brought unusual expertise to his office at Plymouth. The Commission on Fees regarded the

1. PP-CF, p.463; NMM, SAN I, fo. 357, 23 May 1771. The necessity of providing sureties of up to £4,000 further ensured that the clerical officers had some influence and property. Pownoll's guarantors for the position of Storekeeper were, reported Ourry, "gentlemen of such character and fortune that I am perfectly satisfied of their sufficiency" (PRO, ADM 174/117, 12 Ap 1782). Only two officers, apart from the Resident Commissioners, were addressed as "Esq" by the Commission on Fees; both were Storekeepers.

generally low level of expertise which the clerical officers brought to their posts as a considerable weakness. It recommended that:

> None but those conversant in the business should be chosen, and that it would tend much to the good of the service, if upon a vacancy the chief or most intelligent clerks in those offices were preferred, as a reward for having discharged their duty with attention and integrity. 1

However, at least most of the officers had spent most of their lives in the civil administration of the navy, either as clerks in the Navy or Victualling Offices or as officers at foreign yards.[2] In this period only Peter Butt, the Clerk of the Survey at Deptford, came to his office by way of being a ship's purser.

This disparate collection of men came together regularly for collective decision-making, in which, theoretically, each officer had equal voice; in practice, there was a distinct unofficial hierarchy among the officers. The Master Shipwright controlled the largest number of men, and occupied the longest-established position; he was therefore likely to wield most power. One authority states that the Master Attendant was the "Commissioner's right hand man and his deputy in his absence from

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1. PP-CF, p. 308.

2. There was a considerable amount of movement from the smaller yards to the more favoured. See Appendix II.

the yard",[1] but of the technical officers the Master Shipwright was undoubtedly the most formidable; certainly he was in a position to reward the larger number of people.

At the other end of the scale, the Clerk of the Survey was considered the most junior. The lack of esteem and seniority of this officer was criticised by the Commission on Fees, particularly because an important part of his duty was to act as a check on the other officers' expenditure. Investigating a complaint by the Plymouth officer that he had been expected by the Master Shipwright to sign accounts of contractors' works without due examination of the expenditure, the Commissioners commented:

> The consequence of this officer in your Majesty's dockyards does not appear to have been sufficiently attended to...not only on the receipt and issue of stores, but in every other branch of expenditure in or belonging to the yards. 2

Peter Butt noted that the Clerk of the Survey, "cautiously avoided intermeddling with any expense arising from...ships either building

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1. Sir Henry Kitson, "The Early History of Portsmouth Dockyard", Mariner's Mirror, 34, 1948, p.92. It is possible that this judgement was the result of the Commissioner and the Master Attendant sharing the same background and some of the same duties, and that the powerful position of the Master Shipwright led them to close co-operation. There was, however, no official seniority. See also Baugh, p.295n.

2. PP-CF, p.311.

or under repairing",[1] but his duty of inspecting the other officers' accounts, the Commission pointed out, "must not be deemed officious interference, but part of the duty required of him".[2] Part of the trouble was that the clerkship had not been long established as a principal office; in the 1662 Instructions the Clerk of the Survey was not mentioned as a principal officer, but merely included in the instructions to the other officers as agent to the Surveyor. Thus he was in the difficult position of being considered the most junior at the same time as having to inspect his colleagues' accounts.

In spite of these imbalances, the general rule was one of co-operation; in co-ordinating work there may have been faults, but the lack of faction among yard officers was notable. Yet it is probable that this unity was achieved at the cost of a certain amount of efficiency. Co-operation was forced on them by the system; it was either this or continual suspicion, yet, as Baugh points out, "no-one was qualified to cast the first stone".[3] Nor was it, of course, in any officer's interest to appeal to the Navy Board or its representative, the Resident Commissioner. His

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1. PRO, ADM 106/3404, 7 Dec 1778.

2. PP-CF, p.312. One indication of the Clerk of the Survey's position is that at the western yards he received less than half the income of the Clerk of the Cheque.

3. Baugh, p.294.

authority over the officers was largely of his own making, for his position was not a strong one. The Commission of Enquiry noted that the Resident Commissioner, "although the Principal, appears to have less influence over the workmen than any other officer".[1] This situation stemmed largely from his lack of initiative in making yard appointments. Nevertheless, aided by a strong local political base, as, for instance, Hood and Ourry possessed, it could be an effective position; a forceful personality could also be an asset. When a Commissioner resident had neither of these advantages (and Gambier at Portsmouth springs immediately to mind), then the efficiency of the yards suffered.

Nevertheless, however strong the Commissioner was personally, his diverse responsibilities left him with little chance to really carry the Navy Board's authority to the yards. Martin gave a picture of an ordinary working morning:

> When comptrolling at the Pay Office... (he)...is many times in a morning called to go ~~off~~ to his office or house and attend to the requisitions of commanders of squadrons, besides being frequently obliged to wait upon the Commanding Officer of the port and confer with him on the exigencies of the fleet. 2

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1. PP-CE, p. 3.

2. NMM, POR/F/18, 13 Jan 1783.

There was little chance of supervising the yard officers, even when he was not afloat comptrolling the payment of the ships. The general supervisory nature of the Commissioner's role meant that he was the first to be imposed upon when any new task was to be undertaken, and through the century the Commissioner's duties had increased. The central administration also considered it difficult to find men of trust and therefore was reluctant to allow the spread of responsibility below him. The process was self-defeating. An overworked Commissioner could not do everything; in addition, all of them were sickly men when they came to their posts, and not surprisingly they were frequently absent. Their three clerks examined most of the returns sent to the Navy Board, made and passed bills to the contractors, and, especially in war-time, assumed more and more responsibility.

The only check on the yard officers which remained was the vigilance of one officer upon another; this too was in-effective. It is significant that the two activities which had the reputation of being the most liable to inefficiency and abuse, that of mustering the yard workmen and the reception of stores from contractors, all the officers were more or less involved. Compromise between the officers was the rule, and checking, beyond seeing that the books and accounts were in order, the exception. Above them was a board which had little power in disciplining

them; if any official reprimands were to be made, then the Admiralty was needed, and traditionally the Navy Board was always reluctant to involve its political masters. The result was a large degree of independence for the yard officers, and this made for unity amongst them. It was not in the officers' interest to report any discrepancies in their colleagues' business; the relationship among the five principal officers was too delicate and too critical to be upset in this way.

ii) The Technical Departments.

Although the Master Attendant and the Master Shipwright had the charge of separate departments and different workmen, they shared responsibility for many of the larger operations in the yards. Thus, while the launching, docking or undocking of a large ship was the concern of the Master Attendant in his role as shiphandler, such an operation demanded the assistance of the shipwright officer because of the size of the task and the number of men that had to be controlled in performing it. There were other reasons for co-operation at a technical level. Both

officers combined to inspect, measure and value the transports which had been tendered for hire to the Navy Board,[1] and they would "proportion" the amount of stores in the charge of the boatswain and carpenter of ships fitting out, inspect them when they returned from a commission and examine and pass these officers' accounts. They also had parallel responsibilities in the reception of stores from contractors in inspecting items which were "relative to their province".

In contrast to the shipwright officer, the Master Attendants spent most of their time afloat. At the yards of Chatham, Portsmouth and Plymouth there were two of these officers, equal in rank and responsibility. Apart from the fact that their duties often involved at least one of them in lengthy periods of absence from the yard, the reason for this duplication was that the nature of their job was such that it involved a large degree of personal supervision; its importance allowed little chance to delegate authority. Although the maintenance of the ships in Ordinary has been attributed as the primary function of the Master Attendants,[2] it is clear from both the 1662 Instructions and the Commission on Fees that their main contribution to the

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1. The officers at Deptford undertook the bulk of this task. For a full account see Syrett, pp. 106-120.

2. See Baugh, p. 297.

service of the yard was the seamanship needed in launching, docking, masting and rigging the ships. When ships were moved from mooring to mooring, or, those which were decommissioned, from yard to yard, it was one of the Master Attendants who was in command. They also appointed pilots, who were particularly needed in the difficult waters of the Thames and its approaches, while the occupants of the post at the upriver yards of Deptford, Woolwich and Chatham were responsible for transporting ships to and from the sea.[1] The masters of the small transports belonging to the yards also came under their orders, while, at the River yards, they supervised the transports loading stores for foreign yards. The usual reason for the absence of these officers was their responsibility for the launching of a ship from a merchant yard, and then bringing it to one of the royal yards to be fitted. This usually took about a month, but on one occasion William Nicholson, one of the Master Attendants at Portsmouth, was away at Bucklers Hard for seventy-four days.[2]

In peacetime, however, the Master Attendant, and the seamen of the Ordinary over which he had charge, were mostly engaged in the maintenance and security of the ships in Ordinary.[3]

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1. From Chatham the ships had to get to the area known as Blackstakes, just above Sheerness, while the ships piloted down the Thames had to reach Long Reach.

2. NMM, POR/C/22, 20 Feb 1778; also e.g. POR/D/21, 31 Jan 1779; POR/D/22, 8 Jun 1780.

3. As in the case of the ships, the seamen who maintained decommissioned ships were borne on the "Ordinary" estimate; as a body of men they were known simply as "the Ordinary".

The 1662 Instructions required the Master Attendant to lodge on board a ship every night, but this was not obeyed to the letter, even at the larger yards where there were two officers, sharing the duty on an alternating weekly basis. The general weakness of security through the century resulted in the increasing involvement of the Resident Commissioner, and by the time of the American war he and the Master Attendants shared the responsibility of the security of ships often some miles from the centre of the yard. It was an almost hopeless task.[1]

The main reason for this, and, incidentally, for the poor quality of maintenance of the ships throughout the century, was the poor calibre of the seamen appointed to look after the ships while they were laid up. On each ship, there was a boatswain, carpenter, purser and gunner and a number of seamen. These were unpopular jobs. The purser's post was invariably filled by a deputy, because of the combination of lack of comfort and the money that could be made out of the position, while the boatswains and carpenters were old men, frequently verging on senility.[2] Although the purser was the most senior

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1. The Master Attendant was also responsible for the safety of the ships, and was required to check the chain, bridles and tackles of the moorings, and to lift and inspect them every summer.

2. If the ship was commissioned, these boatswains had to apply to the Admiralty to change places with a younger man. In an effort to attract better men, the Navy Board allowed two servants to boatswains and gunners (SO(a), 606, 31 Jul 1772) and lowered the entry age to only thirteen (SO(a), 544, 8 Jun 1769).

man on board a ship in Ordinary, it was the boatswain who, under the immediate charge of the Master Attendants,[1] was in charge of maintenance and of keeping the ship constantly pumped. After the American war Middleton instituted the first change in the department for over a century by creating a new post of "Superintending Master". This officer, recruited from the senior masters in the sea service, was to be responsible for a "division" of ships in the harbour.[2] This was an attempt to take some of the burden off the Master Attendants, and to enable the officers to deal with the increased number of ships laid up at the end of the war. At the same time the number of seamen on board was increased, and a system of having half the men ashore, and half aboard the ship, changing every Monday morning, was instituted.[3] Instructions to the seamen were drawn up, printed and hung in every ship.[4] In spite of the difficulty of attracting enough seamen to the Ordinary, even after the demobilisation, there is little doubt that the ships which were laid up were better maintained after the war.[5]

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1. PP-CF, pp. 412, 449.

2. SO(b), 209, 30 Sep; 2II, 7 Oct 1783.

3. SO(b), 193, 27 Aug 1783; 261, 7 Jan 1784. Even after the demobilisation there was difficulty in manning the ships at the eastern yards.

4. SO(b), 195, 3 Sep 1783.

5. See PRO, ADM 174/115, 26 Nov 1774; NMM, POR/D/22, 24 Jun 1777; POR/F/18, 9, 28 Mar 1783; PRO, ADM 106/3320, 13 Feb 1783; 174/118, 11 Mar 1783; 174/19, 6 Feb 1783; NMM, ADM BP/4, 24 Nov 1783; A/2793, 28 Nov 1783; SO(b), 224, 13 Nov 1783.

The Master Shipwright, or "Builder", as he was informally called, directed the rest of the operations, and it was around him that the working of the yard revolved. He was in charge of building, fitting, repairing and surveying of all ships in and out of commission. The ships in Ordinary, although under the general charge of the Master Attendant, were also his concern when repairs and surveys on the main fabric of the ship were needed. Although most of the supervision of the work had now devolved onto his two Assistants, much depended on the Master Shipwright's energy and skill. It was on his word that the Admiralty ordered ships to be repaired, refitted or broken up. He was also responsible for a workforce numbering, at the larger yards, over two thousand. To control these men there was a large number of inferior officers under his command, and to assist him in the routine paper work, there were two clerks in his office at the eastern yards, and three at Portsmouth and Plymouth.[1] They recorded the proceedings, prepared the weekly reports which were sent to the Navy Board, and kept records of orders, issues, returns and letters to and from the Board and the other offices in the yard.

Since there were no instructions for the inferior officers, not surprisingly their duties varied from yard to yard. The position of the Builder's two Assistants provides an example. At

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1. At Sheerness the Master Shipwright possessed only one Assistant and one clerk.

Portsmouth, for instance, the duties of the two officers alternated weekly, while at Deptford the first Assistant was considered the senior; he thus had more responsibility.[1] At Plymouth, their duties were the same, but they reported that "they take the ships alternately".[2] Whatever the variations, the main task of the Assistants was the supervision of the shipwrights and other workmen under the Master Shipwright; they gave, "constant attendance to people coming to their work, in order that they shall make the most advantage of their time", and took "care that the Foremen and quartermen bring up works committed to their trust in a workmanlike manner".[3] Each yard had two or three Foremen, who in turn provided the link with the quartermen in charge of the gangs of artificers.[4]

There were two other officers under the Master Shipwright who were almost but not quite of equal authority with his two Assistants. The first was the Master Caulker;[5] he was responsible for the breaming and graving of ships, and inspecting the quality of the ocham, with which the caulkers worked. It was

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1. PP-CF, pp. 415, 322-323.
2. PP-CF, p. 453.
3. PP-CF, pp. 322-323.
4. See SO(a), 609, 26 Aug 1772. The quartermen, who were shipwrights promoted from the ranks, also had "pro-quartermen" and "sub-quartermen" under them. The former were shipwrights appointed in place of quartermen who were absent from the yard in order to oversee the building of a ship in a merchant yard; the latter took the place of sick or disabled quartermen. See NMM, CHA/E/33, 18 Jun 1778.
5. At Deptford and Woolwich the post of second Assistant was combined with that of the Master Caulker.

his duty to attend the Builder at regular intervals, receive his instructions, and "acquaint his Foreman and quartermen where to employ the caulkers to the best advantage".[1] The Boatswain of the yard occupied a similar position over the unskilled labourers; he was to, "dispose of them in gangs to carry on the different services the Master Shipwright gives directions to be done."[2] One of his jobs which was particularly vital was to be in charge of the men working the tackle when ships were heaved in and out of dock, while his responsibility also extended over the cranes used for lifting timber from the barges and hoys into the yard. He, too, had a Foreman, and several assistant Foremen under him.[3]

The last links in the chain of authority were the measurers. At the three large yards the Master Shipwright had a painter's measurer, a sawyer's measurer and a timber measurer.[4] These were promoted shipwrights, "on the same footing as a quarter-man", who were entrusted with measuring and supervising the work of those artificers who worked "by the piece", or on a piece rate; the timber measurer was the exception, in that his main job was to

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1. PP-CF, pp. 419, 457.

2. PP-CF, pp. 338, 358.

3. These posts were created in 1772 (SO(a), 609, 26 Aug 1772).

4. At Sheerness there was a measurer to perform all three tasks, and the River yards had no painter's measurer.

measure timber received from contractors.[1] Those other trades which required measurement were shared arbitrarily between the measurers.[2] Most of these duties were performed in conjunction with clerks from the clerical offices.

Finally, the yard Purveyor must be mentioned at this point, although he was not strictly in the Master Shipwright's department. Each yard, except Sheerness, had its own Purveyor, whose main job was to survey stores tendered locally; it was on his report, for instance, that the Navy Board would base a decision to buy timber. He was also enabled to buy small stores on his own initiative (known as "petty emptions"), for which purpose he would attend the Master Shipwright to see if any item was wanted quickly. However, authorisation for this would have to come from the Resident Commissioner. The main tasks of the Purveyors at the River yards was to buy small items or amounts of stores in the London market, for which it was not worth drawing out a contract. However, at the outports, the Purveyor and his

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1. See SO(a), 593, 31 Dec 1771. The Navy Board ordered that someone other than a shipwright should fill the post of sawyer's measurer to the Clerk of the Cheque, although the shipwright officers resisted, claiming that the measurer's effectiveness "depends greatly on his professional knowledge" (PRO, ADM 106/3320, 6 May 1783; NMM, POR/D/23, 8 May 1783; SO(b), 105, 21 May 1783).

2. e.g. the timber measurer at Woolwich also inspected the work of the paviours, masons, scavelmen, lacquerers, oarmakers, house carpenters, bricklayers, glaziers and painters and "ascertained their wages for the same" (PP-CF, p. 346).

deputy were usually more concerned with the surveying of timber, and were often away from the yard for long periods.[1]

The workmen and artificers under the Master Shipwright can be divided into two groups. The larger of the two consisted of those men who were directly concerned with the building, repairing and refitting of the ships. The largest section of skilled men in this group was the shipwrights; the majority of these men worked in gangs of twenty, under the charge of a quarterman, and moved around the yard to wherever they were needed. These gangs would be "shoaled", or picked in the manner of an "informal sporting match" so that the best men were spread through the gangs.[2] However, shipwrights were also employed on permanently-located jobs in the mast shed (under the Master Mast Maker) or in the boat shed (under the Master Boat Builder); they would tend to be the older, more skilful men. Working in close conjunction with the shipwrights were the caulkers; many of these men had trained as shipwrights, and were qualified for both trades. They were known as "double-handed men". The caulkers, who also worked in gangs, were assisted by ocham boys, who sorted and picked the material which the caulkers used. There were various

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1. See PP-CF, pp. 386, 438-9, 471.

2. See Baugh, pp. 314-5. The gangs were shoaled each year at the end of the Lady quarter, but this was changed in 1771 to the end of December to avoid confusion at payments (SO(a), 591, 18 Dec 1771).

other workers. The smiths were engaged in making ironwork of all descriptions, including anchors, for the ships. Joiners were responsible for the woodwork inside the ship. Blockmakers, wheelwrights, locksmiths and occasionally a brazier made up the variety of trades under the Master Shipwright. Finally, there were the sawyers, who worked in pairs. Working a saw vertically over a saw pit, they "converted" rough logs into timber and plank.

The remainder of the workforce was only indirectly concerned with working on the ships. There was a large number of unskilled labourers necessary in an unmechanical age. Many of these men had "stations", especially in the storehouses,[1] but they too mostly worked in gangs. Although teams of horses were hired on a contract basis, much of the heavy work had to be done by hand, "particularly the taking of timber, plank and all other stores, and depositing them in piles, or other proper places for their reception".[2] Scavelmen cleared the filth of the yard and the mud which accumulated in the docks and the yard. Finally, for the maintenance of the buildings and docks there were house

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1. e.g. PRO, 106/3318,(?)Jul 1776, an account of "stationed labourers" in Deptford yard produced for the Visitation. There were 69 of these men spread around the yard, but Deptford had always had a high proportion of labourers because of the large amount of stores which had to be handled there.

2. PP-CF, p.338.

carpenters, plumbers, bricklayers, masons and paviours.[1]

Although it was neither specified in the 1662 Instructions, nor authorised by a subsequent Standing Order, the Master Shipwright had assumed responsibility for the maintenance of yard facilities and of minor building undertakings. Even though projects of any size were put out to contract, the shipwright officer was still concerned, for it was he who dealt with the contractor. It was a situation which the Commission on Fees criticised; "We allow the shipwright officers every merit for their ability in their professional line, but we conceive that to be naval, not civil architecture".[2] This statement was the final result of a controversy which produced friction between the yard officers and the Navy Board, within the Board itself and between the Board and the Admiralty. The centre of the controversy was one John Marquand, who had been introduced in 1777 as a civil architect to supervise the building of the Marine Barracks at Chatham.[3] After this he was retained to survey and inspect the contracts for any major building project.[4]

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1. Paviours were responsible for the paving in the yard; house carpenters were ordinary carpenters called so to distinguish them from the other wood workers.

2. PP-CF, p. 314. At the beginning of the century most of the yard buildings had been built of wood, and the difference between ship-building and the substantial brick building common by this period had not been so marked.

3. NMM, ADM B/194, 7 May 1777. The Board proposed that he should be paid two hundred pounds a year.

4. e.g. NMM, ADM A/2736, 1 Feb 1779; PRO, ADM 95/96, 8 May 1779; SO(b), 208, 26 Sep 1783; NMM, ADM BP/7, 30 Jan 1787.

Marquand, however, was given little co-operation. Middleton complained that the yard officers, "finding themselves very much restrained by his skilful superintendence, endeavoured by every means in their power to lessen his consequences, and to make his situation unpleasant".[1] Nevertheless, in spite of the wishes of the Surveyors, Marquand was retained; he corrected valuations, and reported on and supervised works being carried out. The Comptroller found him an "honest man, intelligent and attentive to his business", and had no doubt of his value:

> The advantages derived from his exertions have been of the utmost consequence to the public, both in respect to the goodness of the work and the reduction of the prices; of which I shall give one instance. The yard officers had made an estimate, by which the contractor was to be allowed at the rate of four pounds for certain work which Mr. Marquand reduced to 7s.6d. 2

However, when Howe discovered Marquand's existence during the 1784 Visitation, the architect's job was immediately in jeopardy. Partly because the First Lord considered him a needless expense, and partly because the post received Middleton's enthusiastic sponsorship, the Navy Board was soon asked, "for what time longer it may be necessary to continue him in employment?"[3] Although the Navy

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1. NMM, MS66/086, Observations on the Estimates.

2. BL,II, 246, (?) Dec 1786; also NMM, MS66/086, Observations on the Navy Board.

3. NMM, ADM A/2808, 18 Feb 1785.

Board managed to delay a year, the Admiralty directed Marquand's discharge in March 1786; in their Lordships' opinion, "the yard officers...are, or ought to be, competent".[1] In spite of Navy Board protests, the Admiralty insisted on dismissing Marquand, although permission was given to call upon him or others for occasional advice on contract prices. Middleton managed to retain him on a temporary basis into 1787, but a year or so later he was still of the opinion that Marquand "cannot be too soon replaced".[2]

Marquand's expertise was resisted by the shipwright officers for the obvious reason that it reflected upon their skill; while it is impossible to judge if there was consistent corruption in the administration of yard building contracts, it is likely that for years the contractors had gained from the shipwright officer's lack of knowledge. Marquand was originally brought in by the Navy Board because it thought that, "nothing is more likely to contribute to the well performance of the building...(by)...a person properly qualified".[3] Middleton thought the officers "totally

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1. NMM, ADM A/2813, 9 Mar 1786.

2. NMM, ADM BP/6b, 20 Mar 1786; BP/7, 30 Jan, 20 Feb, 24 Ap 1787; ADM A/2817, 23 Mar 1787; MS66/086, Observations on the Estimates. See Webb, pp. 214-5.

3. NMM, ADM B/194, 7 May 1777.

ignorant"; the Navy Board as a whole confined themselves to, "not fully competent".[1] Their lack of competence was proved by the investigation carried out by the Navy Board and the Commission on Fees on contractor's work at Plymouth, carried out after Marquand had been discharged.[2] Money had undoubtedly been wasted, although it is unclear whether this was the result of corruption or lack of expertise. Middleton described it as "great ignorance and partialities in favour of (the) contractors".[3] What is clear is that the shipwright officers made a bad job of their building responsibilities in the yard, and that they regarded Marquand as a threat to their considerable independence over these affairs.

Viewed in the most charitable light it could be said that the shipwright officers probably had little time to attend to the building contracts.[4] In effect, the Builder had three main groups of workmen under him - the shipwrights, the caulkers and the unskilled labourers, apart from the large number in the

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1. BL, II, 247; NMM, ADM BP/6b, 20 Mar 1786.

2. See below p.309.

3. NMM, MS66/086, Observations on the Navy Board Department.

4. The Commission on Fees recommended, upon Middleton's instigation, that a Surveyor of Civil Architecture be appointed (PP-CF, p.314). This did not happen until 1796, although Samuel Bentham as Inspector-General of Naval Works was not quite what the Commission had in mind. See Bernard Pool, Navy Board Contracts, 1660-1832, (London, 1966), pp. 116-7.

minor trades.[1] While it was natural that he should predominate, by this time the roles of the two "equal" technical officers had become unequal. The Master Attendant controlled an insignificant number of men in relation to the Master Shipwright; in addition, in wartime they would decrease, for as ships were commissioned the number of seamen in Ordinary would naturally decline. Yet the Master Attendant's job was every bit as vital, especially in the hectic time when ships were fitting for sea. The only men under his command whose numbers actually increased during the war were the sailmakers and the riggers, and there were never enough of these men, especially at the western yards. Throughout the war there were significant delays because the Master Attendant's department was unable to keep up with the men under the Master Shipwright, and this in turn was the cause of friction with the Navy Board.

iii) The Clerical Departments.

Of the three principal clerical officers, the Clerk of

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1. The ropeyard workers worked under the Clerk of the Ropeyard and the Master Ropemaker. Although the ropeyards were "administratively isolated", the two principal technical officers had to work in close liaison with the Clerk of the Ropeyard (see Baugh, p.299; PP-CF, pp. 361, 443). For a detailed description of the process and of the functions of the different trades in the ropeyard, see J.G. Coad, "Chatham Ropeyard", Post-Medieval Archeology, III, 1969, pp. 147-156.

the Cheque was considered the most senior and trustworthy. He was concerned with mustering and payment of the men. The Storekeeper was responsible for the reception and issue of stores; in this he was "checked" by the Clerk of the Survey.[1] The only duty that the three officers shared was attending the reception of stores from the contractors, for although the Clerk of the Cheque had little to do with stores, he checked his brother officers because it was the clerks in his office who made out the navy bills by which the contractors were paid.[2] Each officer was assisted by a number of clerks; at the time of the Commission on Fees there were ninety-eight clerks belonging to the clerical officers in the six yards. Portsmouth had twenty-two, while Sheerness possessed half that number. The largest department was the Storekeeper's office at Portsmouth with a total of nine, while the three clerks in the Clerk of the Survey's office at both Woolwich and Sheerness represented the smallest.[3] The establishment at every office, except the Clerk of the Cheque's at Chatham, was increased by one clerk during the war. In all, twenty-one extra clerks were taken on, every one the result of persuasive

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1. The duties of these two officers and their departments are more fully described in Chapter Four.

2. As a customary extension of their duties the Storekeeper appointed watchmen for the storehouses, and the Clerk of the Cheque appointed 'warders' to guard the gate of the yard.

3. At the time of the Commission on Fees there were 38 storekeeper's clerks, 35 clerks to the Clerk of the Cheque and 25 belonging to the Clerks of the Survey.

letters from the officer concerned to the Navy Board.[1]

The duty of the Clerk of the Cheque's department was considerable. Not only did the workmen borne on the "Extra" estimate and seamen of the Ordinary have to be mustered, but the responsibility extended to the crews of commissioned ships which were within his "cheque".[2] In addition, it was also this officer's task to hold the yard contingency account, for which he received imprests from the Treasurer of the Navy; from this he paid the seamen's bounty and conduct money. He also handled the money gained from the sale of old naval stores. In his capacity of senior clerical officer it was also his duty to record all Navy Board orders at those yards where there was no Resident Commissioner, and at Sheerness it was his special function to pass on orders and correspondence to the Commissioner at Chatham which came down the River from London.[3]

In addition to the daily mustering of the yard workers, the Clerk of the Cheque's office kept account of all entries,

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1. e.g. PRO, ADM 174/18, 9 Feb 1779; NMM, POR/D/21, 1 Mar 1779; POR/D/22, 23 Dec 1779. The Storekeeper and the Clerk of the Survey at the western yards were allowed two each (NMM, ADM BP/4, 8 Dec 1783).

2. A "cheque" was a somewhat vaguely defined area of estuary or sea for which a particular yard would be responsible; e.g. Spithead was "in the cheque" of Portsmouth yard.

3. None of these minor duties were included in the original instructions, but the Clerk of the Cheque acquired them (in the same fashion as the Resident Commissioner) as the yards grew in size.

discharges, absences, deaths and "runs".[1] Apprentices' indentures were kept here, and it was to this office that the surgeon sent notes of those who were sick or hurt. The workmen attended musters or "calls" at least two or three times a day,[2] although the system varied between the yards. At Deptford the men were mustered five times a day in summer, and four in winter. At Sheerness, from November to January, there were three musters, and an additional one during the remaining months. At Portsmouth the men were called, "at work, before and after the usual working hours and early and late when working extra"; the call clerk noted that, "as some of the workmen come in and go out at all hours of the day and night, he is obliged to attend them accordingly at such hours; also on Sundays to muster the watchmen and warders".[3] His counterpart at Sheerness complained of his duty of mustering the smiths, "who come to work at four o'clock in the morning constantly".[4] Towards the end of the war the Navy Board enquired whether it would be possible to shorten the time taken to take the musters, but the opinion of the yard officers was that omitting any of this lengthy procedure "will be attended with great disorder and irregularity".[5]

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1. See 1717 Oeconomy, pp. 99-102, 111. "Runs" or "mulcts" on a muster book against a workman's name deprived him of his wages as a punishment (see Baugh, pp. 311-2). The Clerk of the Ropeyard mustered the ropeyard workers.
2. The musters were also attended by the Master Attendant's and Master Shipwright's clerk, who kept a record of those absent in their departments.
3. PP-CF, p. 422.
4. PP-CF, p. 396.
5. PRO, ADM 174/19, 2 Jan 1783; ADM 106/3320, 4 Jan 1783; also ADM 174/18, 22 Feb 1780.

The seamen of the Ordinary were the next to be mustered. Every month a "general muster" was held, attended by the Resident Commissioner, "where all accusations, complaints and irregularities" were heard. Those seamen which were employed on shore were mustered every morning by the Master Attendant and his clerk, but this was less a check on attendance than the allotment of the day's work. There was also a weekly check "at uncertain times" after the watch had been set.[1]

There were three tasks which the Clerk of the Cheque had assumed during the century. The first was the mustering of the crews of ships in commission.[2] Even when the commander of the ship had taken over the supervision of fitting out, the yard officer still had charge of the mustering. When the ship sailed "from his district", the Clerk of the Cheque was to supply the commander with a "perfect muster book of men's names, with entries and checks against the absent".[3] This muster had to take place at least once a week, although at the River yards it was done daily. At a refitting base this was a heavy burden. The second clerk to the Clerk of the Cheque at Sheerness noted that he spent four days a

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1. The watch was set at 9 p.m. in the summer and 8 p.m. in the winter (PP-CF, p.328).
2. PRO, IND 9315, 15 Jul 1731, 21 Jun 1739.
3. Regulations and Instructions relating to His Majesty's Service at Sea, established by His Majesty in Council, (London, 1772), pp. 22-3.

week on this duty, mustering the ships either at Sheerness, Blackstakes or the Nore, "on which occasions he is detained the greatest part of the day or night...and is employed on the business of his department ashore at such intervals as he is at liberty for that purpose".[1] This onerous task was performed by a junior clerk, the Commission on Fees noted that it was "aware of the difficulties which young men are exposed to when they endeavour to be strict in the execution of this part of their duty".[2] Secondly, the three large yards were embarking and disembarking points for marines. They had to be mustered every month, and at any time on arrival or departure from the "cheque" of the yard. When the divisions went abroad, a complex accounting system was involved.[3] Finally, the large number of hired transports and tenders had to be mustered daily. The River yards were most concerned with this task. Weekly accounts had to be sent to the two boards.[4]

The musters were used in three principal ways. After being made up into monthly "call" books, the lists of yard workmen were sent quarterly to the Navy Board. Musters for the seamen went

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1. PP-CF, pp. 397-8. One clerk complained that "attending this also service was both dangerous and prejudicial to his health"; (NMM, CHA/M/3, 27 Feb 1771).
2. PP-CF, p. 309.
3. PP-CF, pp. 375, 420, 457.
4. PP-CF, p. 326.

weekly to both boards, and on occasions more frequently. The second purpose was for the Clerk of the Cheque to make out warrants to the Commissioners of Victualling to issue rations to the seamen both for sea and harbour service. Before the Admiralty ordered a ship to be put into "Sea Victualling" the seamen of ships that were about to go to sea were given the same rations as those men in the Ordinary. These rations were ordered by "petty warrant", which was rather smaller than the ration issued for sea service.[1]

Thirdly, the musters formed the basis of the payment of the yard workmen and the seamen of the Ordinary. The quarterly payment was undertaken by clerks from the Pay Branch of the Treasurer of the Navy's department. The method of payment was the same as for the paying of seamen, although the Clerk of the Cheque's office was responsible for "casting" the workmen's monthly call books in quarterly pay books, which, in the case of the seamen, was done by the Treasurer's clerks. At the three large yards there were six of these clerks, supervised by an outport "Conductor"; it was he who counted out the money, placed it in parcels on the pay table and replaced what remained in bags and chests. If the money was short, the chief Conductor in London was responsible. The

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1. The regulations were changed in 1771 for ships coming home from foreign service so that they were allowed to remain in sea victualling; this allowed them seamen fresh meat (SO(a), 592, 27 Dec 1771).

River yards were served by clerks from the Pay office in London.[1] During the war these clerks were worked very hard; At both the western yards extra sets of clerks had to be sent; during 1779 Hood described those at Portsmouth as being "jaded exceedingly".[2] It was the opinion of one of the officials in the Treasurer's office that: "The office of a pay clerk at the outports is, in time of war, very laborious. In time of peace, they have not full employment".[3]

Those workers who worked on a "piece" or "task" basis were the exception to this method of payment from the muster books. In addition to the measurers of the Master Shipwright, each clerical officer had a clerk who checked upon each other in the measurement of work done "by the piece". The sawyers, for instance, had long been paid "by the hundred foot"; the measurer from each department inspected what had been done twice a day, and on other occasions when special work was wanted. They entered the work of each pair of sawyers into their pocket books, and from thence into the "sawyer's book". A weekly account was then given to the Clerk of the Cheque's office. Every three months the measurers made an account for the Clerk of the Cheque, so that it could be transmitted to the Navy

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1. PP-CF, Fourth Report,pp. 134, 136.
2. NMM, POR/F/17, 1 Oct 1779; also PRO, ADM 174/117, 15 Sep, 21 Nov, 29 Dec 1780.
3. PP-CF, Fourth Report, p. 146.

Board, and divided the earnings between the top and pit man.[1]

It is difficult to assess how efficient and honest the clerks in the Clerk of the Cheque's office were when they mustered the men. Gregson's opinion was that the musters were "very dilatory, and not over-exact",[2] while Sandwich wrote that the clerks were "guilty of a variety of malpractices...taking fees from the men for winking at their absence and mustering them when they do not really go to their work".[3] There is little doubt that the mustering of the seamen was slack; on one occasion the Navy Board remarked that, "His Majesty ~~does~~ suffers great loss by victualling absent persons".[4] The most exact evidence comes from Middleton's anonymous informant from Sheerness:

> Always at the pay table I saw a great many men that I never saw at work, especially blacksmiths, for they have not been mustered of a morning this two years...All of them bribes the call clerk and he has a book at the end of his desk and he keeps account of all that he gets in...It is a quarto book with a blue cover. 5

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1. e.g. PP-CF, pp. 330, 425. The top man received a greater share.
2. Add MSS 24135, fo. 77, undated, to Shelburne.
3. PRO, ADM 7/662, fo. 60.
4. SO(a), 797, 16 Jan 1779.
5. ShP, 151, no. 57, undated.

Another source of income for the mustering clerks was the fixed fee levied for making out "assignment notes" for the workmen.[1] Sixpence per note was the most common rate, and because of the number of men who needed the notes, the custom realised a considerable amount of money. The usual system was for the clerk who made out the note to share the fee with his officer, who signed it. In 1784, for instance, the Woolwich officer received £66. 7. 3 from this source, out of which he paid his clerk £5.13. 0.[2] The men at Plymouth complained to the Admiralty about this custom, but Ourry enquired and found that, "no money is taken from them by Mr. Robert Tom, the call clerk".[3] The Commissioner, however, seems to have taken only the clerk's word for evidence. It was also the custom of the clerks to level down all wages to the nearest sixpence.[4] In 1775 the Plymouth artificers voiced a general grievance; they asked to have "our wages without dimunition (so) that no clerk ... can justly claim a right to the minutest part of that wages we have ~~so~~ laboriously earned".[5]

There is no doubt that mustering was subject to inefficiency and abuse, although some of the clerks' actions might

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1. These notes, which had to be signed and stamped, were given to the workmen's creditors.
2. PP-CF, p. 348; also pp. 359, 421.
3. PRO, ADM 174/117, 19 Feb 1782.
4. PRO, ADM 7/662, fo. 37.
5. PRO, ADM 174/115, 25 Jul 1775.

be said to have been justified. It was understandable that they charged for making out assignment notes; it was an unestablished duty, and the navy was not going to pay them for their trouble.[1] Moreover, there was little incentive to work well, since there was no promotion by merit. The general rule, in all clerical departments, was that the most unpleasant tasks, which were invariably the most responsible, were given to the most junior clerks, although there was no discernible pattern over the six yards over which clerk did which duties. For instance, in the case of mustering, at the larger yards, the workmen were divided arbitrarily between two clerks, and the Ordinary was "called" by a third. There was little supervision; the principal officer himself attended musters only occasionally.[2] Almost all the work had now devolved onto the clerks, and while the number of men in the yards had increased, there had been little increase in the number of clerks to do the work. The result was that in most of the clerical departments, and especially the Clerk of the Cheques', there was lack of incentive, overwork and inefficiency.

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1. Again, the Commission on Fees was critical; "the men should be relieved from any part of the charge whatsoever (PP-CF, p. 309).

2. ibid.

iv) The Labour Force.

The labour force of the dockyards increased steadily throughout the eighteenth century in spite of the fluctuations caused by the additions and reductions at the beginning and end of each war. Thus, according to Charles Derrick, at the high peak of each war there were more shipwrights in the yards than there had been at any time in the previous war. However, the American war was exceptional in this respect,[1] and there were important shortages of men, and of shipwrights in particular. At the end of Sandwich's administration this was seen as a major weakness. In the Commons one of the more informed members thought that the British weakness at sea did not arise, "from neglect in the particular officers, but it was owing to a want of shipwrights".[2] Sandwich admitted the shortage, but saw the remedy as beyond the power of his administration:

> The answer to this is that there is a line beyond which the exertions of every country cannot go. We cannot, nor ever could do more than employ all the shipwrights that this country affords; the law does not allow compulsion upon any race of men but common sailors. 3

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1. Charles Derrick, Memoirs of the Rise and Progress of the Navy, (London, 1806), p. 235-6; also Baugh, p. 264.

2. Parliamentary Register, V, 254, 23 Jan 1782: The speaker was Thomas Fitzherbert, who represented Arundel and was a minor contractor to Portsmouth dockyard; see Namier and Brooke, II, 428.

3. G, V, 351, Jan 1782.

In spite of Sandwich's assertion to the contrary, shipwrights had been pressed at the beginning of the century; but by the time of the 1739-48 war the navy "managed, on the whole, to attract the number it required".[1] In the Seven Years War, "the labour force sufficed", but, as in this war, there were shortages of different workmen, particularly in the western yards.[2] The shipwright situation at Portsmouth, especially after 1781, was particularly grave, while at critical times the Master Shipwright at Plymouth unsuccessfully requested extra gangs to be sent from Deptford.[3] In spite of considerable efforts by the administration, the number of shipwrights varied little throughout the period. From just over three thousand after the strike of 1775, it rose to the more usual level of between 3250 and 3350. The peak was not reached until March 1781.[4] However, it was disturbing that while total numbers rose slightly, the number of working shipwrights fell slowly but steadily throughout the war. The difference can be accounted for by the number of shipwrights who went to merchant

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1. Baugh, p. 323; also Ehrman, pp. 78, 96; R.D. Merriman, Queen Anne's Navy, (NRS, 1961), p. 105.
2. R. Middleton, "The Administration of Newcastle and Pitt", pp. 138, 142.
3. PRO, ADM 174/17, 11 Nov 1778; ADM 106/3472, 3 Oct 1781. If it was possible workmen were sent from one yard to another to relieve pressure. After the 1776 fire at Portsmouth, the ropemakers were dispersed to the other three ropeyards, and sailmakers were sent to the western yards from Deptford (ADM 106/3404, 29 Oct 1778). See also R. Middleton, "The Administration of Newcastle and Pitt", p. 142.
4. See Appendix III. There was also the difficulty of attracting sufficient seamen to man the Ordinary. Only occasionally were returns of these men called for; numbers were dependent upon the ships laid up; e.g. an account of 1 Oct 1778 (NMM, POR/D/21) notes that there were 372 officers and men in 16 ships and 7 sailing vessels.

yards as overseers, and by an increase in the number of petty officers. However, this trend increased sharply after March 1781 by a drift away to merchant yards, possibly in anticipation of the customary wholesale reduction of the labour force after hostilities had ceased.[1]

Although lack of shipwrights was the main problem, the yards experienced shortages of other workmen at different times. Again the difficulties were centred on the western yards. The number of smiths at Portsmouth and of sailmakers at Plymouth were the most critical problems; in spite of extensive advertising and offers of conduct money, the latter were particularly scarce for most of the war.[2] Smiths and caulkers were also in short supply at the eastern yards; for instance, in 1777 Proby placed "an advertisement in the Kentish papers", but it produced little response.[3] After the war Middleton commented that there was, "inconvenience and delays...from thewant of...articles of iron work and the exorbitancy of the prices that the public was obliged in consequence to pay for them has been very great".[4] At other times

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1. See NMM, BP/3, 4 Mar 1782. They fell from 2410 in 1775 to 1707 in 1782.
2. For shortages of smiths, see NMM, POR/D/22, 25 Nov 1779; POR/D/23, 12, 18 Oct 1782; PRO, ADM 174/18, 1 Aug 1780; for sailmakers, ADM 174/116, 10 Nov 1776, 16 Jan, 31 Mar, 19 Aug 1778.
3. NMM, CHA/E/33, 9 Jun 1777.
4. NMM, ADM BP/4, 8 Dec 1783.

there were shortages of joiners, riggers and ropemakers.[1] The exceptional category of workmen in this respect were the unskilled labourers, for there was little difficulty, (except possibly in the River), in finding the necessary numbers.[2] For instance, at Portsmouth in the early part of the war, vacancies for scavelmen, rigger's labourers and watchmen were filled on the day of the reception of the Navy Board warrant ordering a general entry of these men.[3] By contrast, the same source shows clearly the difficulty of attracting shipwrights, for they entered the yard only in one's and two's.

The labour force was assisted by a curious assortment of people. At Portsmouth sick men from Haslar hospital, known as "harbour duty men", were brought in to assist in the fitting out of ships. This procedure brought forth a strong complaint from Hood; it was,

> productive of great inconvenience as well as great distress for the poor men...and I have not seen a captain who has had harbour duty men to fit his ships out, that has not complained of them as a nuisance. 4

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1. For shortages of joiners, see NMM, POR/D/20, 1 Nov 1776; POR/D/21, 1 May 1778; for riggers, POR/F/16, 1 Nov 1776; POR/D/21, 18 Mar 1778; POR/D/23, 20 Mar 1783; for ropemakers, POR/F/16, 24 Oct 1776; PRO, ADM 174/116, 27 Sep 1778.
2. e.g. PRO, ADM 106/3319, 17 Aug 1779; NMM, CHA/E/33, 7 Oct 1779.
3. e.g. NMM, POR/C/21, 22 Mar, 22 Aug 1774; POR/C/22, 22 Mar, 21 May 1778. These lists also show a high turnover of unskilled labour.
4. NMM, POR/F/17, 18 Jun 1780; POR/G/1, 6 Jun 1780.

The River yards had a much more efficient reserve of labour which was used from 1778, and much more frequently from 1780. The pensioners at Greenwich Hospital assisted in loading and rigging ships, and would frequently man them for the short voyage from the River yards to the Nore. They were also occasionally employed at Chatham. From the beginning of 1780 to the end of the war the pensioners assisted sixty-six ships, and as late as February 1784 the officers at the River yards wished them to be retained "until the present hurry is a little over".[1] Another addition to the labour force consisted of some thirty-five soldiers of the garrison at Sheerness who acted as labourers in the yard there. When there was a question of removing them in the middle of the war, the Navy Board claimed that "the business thereof cannot be carried on".[2] Finally there were the "parish poor" at each of the yards, who were employed to pick ocham. This custom had been long established, and it was found, as in previous wars, that "the honest poor not in the workhouse" had to be employed, for the parish poor, "in times of large equipments...could never furnish enough".[3]

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1. NMM, ADM BP/5, 3 May 1784, enclosures of 12, 18 Feb 1784; also ADM A/2747-2784, 1780-1783; CHA/E/33, 3 Ap 1778. Since they were seamen, the Admiralty had to give the order for them to be used on specific ships.

2. NMM, ADM BP/2, 3 Oct 1781; A/2768, 10 Oct 1781.

3. NMM, POR/D/22, 8 Oct 1779, 19 Feb 1780; see also PRO, IND 9315, 8 Mar 1660; SO(b), 132, 23 Jun; 137, 30 Jun 1783.

The administration started off the war from a position of weakness which was due to a combination of bad luck and of bad judgement. The task work strike of 1775 had resulted in the discharge of 129 shipwrights and apprentices in September of that year.[1] Not long afterwards a considerable number of shipwrights and caulkers had to be encouraged to go abroad to the foreign yards. These men came mostly from the western yards.[2] Finally, Sandwich was forced to economise; by a warrant of March 1774 the yards were ordered to reduce their workforce to a fixed establishment.[3] At Portsmouth, for instance, this resulted in the discharge of nine shipwrights, fourteen joiners, twenty-three house carpenters, twenty-three bricklayers, one blockmaker, fourteen scavelmen, thirteen labourers, eleven sawyers and two teams.[4] The yards were ordered to keep their workers to this establishment, but about a year later, in May 1775, they were ordered not to take any more shipwrights at all.[5]

Less than two months later this order was reversed; at every yard except Chatham and Sheerness shipwrights were to be

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1. PRO, ADM 7/662, fo. 67. See Chapter Three.

2. See NMM, ADM A/2703, 5 May 1776; A/2709, 18 Nov 1776; also ADM B/195, 26 Sep 1777.

3. PRO, ADM 95/95, 16 Mar 1774. See Appendix IV.

4. NMM, POR/C/21, 21 Mar 1774.

5. SO(a), 677, 5 May 1775.

taken on to fill the establishment, although it was made clear that only those under thirty-five would be employed.[1] In late 1776 the Admiralty gave the Navy Board a free hand to take on as much labour as it thought necessary.[2] However, it was not until 1778 that the administration really began to exert itself; by then there was a considerable shortage, which evidently took it by surprise. Even then its measures were half-hearted. On 9th January the yards were ordered to relax the entry restrictions by raising the maximum age to forty-five. A month later it gave a similar order for unskilled labour.[3] An entry in the Board minutes notes that the officers were ordered, "not to be too scrupulous in entering...good workmen at this time when they are scarce".[4] However, it was only in April that the yards were ordered to enter as many shipwrights as possible.[5]

Throughout the war the Board's response to urgent demands from the yard officers for more labour was hesitant and inadequate. The problem of the riggers at Portsmouth illustrated the shortcomings of the Navy Board's attitude. There had always been

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1. PRO, ADM 95/95, 29 Jun, 5 Jul, 7 Jul 1775; also 29 Aug 1775. The restriction had been in force for shipwrights since the previous year, and for the labourers since 1772 (SO(a), 617, 20 Nov 1772; 665, 22 Jul 1774).
2. NMM, ADM A/2708, 29 Oct 1776.
3. SO(a), 732, 9 Jan 1778; 735, 9 Feb 1775; see also NMM, ADM B/195, 4 Feb 1778. The Board could be inflexible over the ages of newly-entered shipwrights. In 1780 it ordered 7 to be discharged for being over 45 (PRO, ADM 174/18, 14 Jan 1780; see also 174/17, 12 Jan 1778; 174/116, 11 Dec 1778).
4. PRO, ADM 106/2597, 12 Jan 1778.
5. NMM, ADM B/196, 1 Ap 1778; SO(a), 740, 2 Ap 1778.

pressure on this section of workmen, so there was little excuse for failing to anticipate any shortage of these men.[1] As early as 1776 Gambier wrote to the Board to say that since forty-four riggers had been discharged recently, "the service could not be carried on with the necessary dispatch"; the Board therefore brought the number up to seventy riggers and the same number of labourers.[2] By the beginning of 1778 the Commissioner and the Master Attendants wrote to say that the number of riggers was considerably short of the establishment in 1770 when they were less busy. They asked for 120 riggers and eighty labourers, but were allowed to hire only 180 in all. A year later this was not sufficient; every spring tide there was difficulty, and "ships had several times waited for blocks". This time the Board authorised an extra forty, but no more were allowed during the war.[3]

At the same time the Board was hiring contract riggers, which it had done in the previous war in the eastern and the River yards;[4] by 1780 Hood noted that at Portsmouth, "ships are now in general rigged by contract".[5] The officers had complained

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1. See Baugh, pp. 336-7.
2. NMM, POR/F/16, 1 Nov 1776; PRO, ADM 95/95, 5 Nov 1776.
3. NMM, POR/F/16, 18 Mar 1778; POR/D/21, 18 Mar 1778; PRO, ADM 95/95, 20 Mar 1778; NMM, POR/D/21, 8 Ap 1779; PRO, ADM 95/95, 9 Ap 1779; also POR/D/23, 20 Mar 1783.
4. Baugh, p. 337.
5. NMM, POR/F/17, 18 Jun 1780.

in 1778 that, "it often happens that the rigging house people are for the greater part of their time employed afloat", which resulted in a shortage of blocks;[1] now the yard riggers could be kept in the rigging house preparing blocks. By the end of the war, there were riggers working by contract at every yard.[2] This was a logical extension of the necessity of employing contractors to build ships and to make sails; nevertheless, it did not hide the piecemeal and inefficient way in which the Board provided labour for the yards.

Yet even if the administration had been skilful in anticipating shortages, there were no short-term remedies to the labour problem. Sandwich himself pointed out that recruiting drives and measures such as the offer of conduct money to new shipwrights were comparatively ineffectual; "all this goes a very little way towards procuring the number for whom we could find full employment".[3] There were much more deeply-rooted reasons for the failure to attract an adequate workforce. The first was the constant disadvantage with which the yards competed with private shipbuilders. Sandwich was of the opinion that the

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1. NMM, POR/D/21, 18 Mar 1778.

2. e.g. PRO, ADM 95/95, 9 Feb 1776; NMM, ADM B/193, 26 Nov 1777; BP/3, 28 Nov 1782. Mr. Huffam was the main contractor.

3. G,V, 348, Jan 1782.

merchants, with fewer overheads than the yards, would always pay better wages:

> If the trade of this country is to go on, the merchants will, and always must give more money for shipbuilding than the Crown. The increase of wages without the increase of work in the dockyards would be exactly so much money thrown away, as the merchants' would rise in proportion. 1

Working in a private yard appealed to the younger shipwrights particularly, who benefited by the wages the merchants offered for a high daily output. Against this, the dockyards could only offer security;[2] but it would have been possible, with greater forethought and planning, to have ensured that an adequate workforce was on hand when it was needed.

There had been an attempt at organising the number of men working in the yards. Although the warrant of March 1774 had had the unfortunate effect of reducing the yard workforce just before the war started, it at least went some way to establishing a principle that a fixed establishment of each trade was necessary. Unfortunately, it was not compiled with a great deal of logic, nor was there any real idea of the total number of men needed. There

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1. G,V, 351, Jan 1782. In late 1782 the Board had to issue an order to the contract builders to release men who looked as though they had come from the dockyards. It had no effect (NMM, ADM BP/3, 15 Oct 1782; SO(a), 1203, 23 Oct 1782).

2. See Chapter Three.

was a wide variation in the proportion of each trade to the total workforce of each yard. For instance, while there were to be fourteen shipwrights to every caulker at Deptford, there were only six at Sheerness, and ten at the western yards. Middleton claimed after the war that the 1774 establishment of caulkers, "was never found adequate to the demands in that time even with the assistance of double-handed men in time of peace, but in time of war occasioned the most disagreeable delays".[1] Although the rule of three shipwrights to every labourer was consistent at every yard except Deptford, there were considerable variations in the proportions of the other trades to the shipwrights. At both the western yards the warrant of 1774 established twenty-two shipwrights to every sailmaker. This ratio was more than halved during the war, but even then these two yards were always short of sailmakers.[2]

The warrant of 1774 failed in many other respects as a realistic assessment of the labour situation.[3] The main reason for this was that it was based, like most other things, upon precedent. The same respect for what had gone before hindered shorter-term planning. Since there was always the difficulty of

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1. NMM, ADM BP/4, 8 Dec 1784.

2. PRO, ADM 95/95, 16 Mar 1774. See Appendix IV.

3. For instance, it laid down that Portsmouth was to have 860 shipwrights. This level was never reached even at the height of the war.

dismantling even temporary posts, the Board displayed a marked reluctance to create new ones. In 1778 Hood asked the Board for an allowance so that a labourer could be added to the staff of the pay office at Portsmouth. The Board replied that,

> although this matter may appear trivial, the allowances should be restrained as far as possible, as we find they are constantly increasing by small degress, and when complied with are made precedents on occasions of more importance. 1

It was this attitude which lay behind the Board's failure to anticipate shortages. For each increase in the workforce, the yard officer concerned had to prove that there already was an urgent need for more men, and the success of an application seemed largely to rest on the officer's skill in pleading his case.

The administration also failed lamentably in the one other method of attracting labour. The only way in which the skilled labour force could be augmented permanently was by increasing the number of apprentices. This, of course, needed time; as Sandwich remarked in 1782, increasing the number of servants, "does not promise any great addition of strength upon a sudden emergency".[2] Yet it was not until the end of 1778 that the administration woke

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1. NMM, POR/G/1, 1 Ap 1778. See R. Middleton, "The Administration of Newcastle and Pitt", p. 139.

2. G,V, 349, Jan 1782.

up to the fact that it had done little to encourage the entry of servants. In reply to an Admiralty request for information the Navy Board stated that an increase in servants was the "most probable means of supplying the yards with able and steady workmen"; it claimed that it had increased numbers, but it was clear that it had only just done so,[1] and that the old-established proportion of one apprentice to every six shipwrights, and one to every five caulkers, had not been exceeded for long.[2] Few apprentices had been added in the first years of the war; in 1776, for instance, there were four less than there had been the previous year.[3] When the First Lord claimed in 1782 that there were 324 additional apprentices, he stated the truth, but he concealed the fact that most of these apprentices had only just been taken on.[4]

The provision of apprentices was more important than merely adding to the workforce. Certainly, the only way to become a shipwright was by serving an apprenticeship of seven years; anyone who tried to work in the yards without proper indentures was

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1. NMM, ADM B/197, 30 Oct 1779; also A/2732, 21 Oct 1778; A/2736, 11 Feb 1779; B/198, 24 Feb 1779.
2. See PRO, IND 9315, 13 Jul 1711, 21 Jun 1732.
3. The number of entries were as follows: 1775, 44: 1776, 70; 1777, 66: 1778, 69: 1779, 111: 1780, 172: 1781, 221: Mar 1782, 385 (NMM, ADM BP/3, 4 Mar 1782). At Portsmouth none were added between 1775 and 1777 and in 1781 (POR/D/23, 17 Feb 1782).
4. G,V, 349, Jan 1782; the figure differs slightly in SaP, IV, 289, 31 Dec 1781.

soon ejected by the workmen. However, apart from providing the yards with trained men, apprentices were looked upon as far more use in supplementing the income of their masters. Unfortunately, and for this reason, the officers held the indentures, and therefore the wages, of most of them, and consequently the chance of a workman obtaining an apprentice was far too slim to act as a factor in encouraging craftsmen to join or stay in the yards as it had done in previous years. In early 1779 the Navy Board reported that out of the 703 apprentices of all trades in the yards, 121 belonged to officers, 282 to petty officers and quartermen, 165 to carpenters of ships and that only 135 out of several thousand ordinary artificers had the benefit of a servant.[1] "Had apprentices been given to the most deserving shipwrights", remarked Thomas Fitzherbert in the Commons, "...it would not only have rewarded the old, but encouraged the young; and we might have then had double the number of shipwrights we had at this time".[2]

The Commission on Fees reserved its most harsh criticism for the method of training apprentices. It recommended that no officer with a salary should have a servant, and that the system was expensive, "discouraging to able and deserving artificers,

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1. NMM, ADM B/198, 5 Jan 1779; See Baugh, p. 323. In Jan 1782 the Navy Board estimated that the number of apprentices belonging to officers came to between 600 and 700 (NMM, BP/3, 4 Mar 1782).

2. Parliamentary Register, V, 255, 23 Jan 1782.

detrimental to the public service, and subject to many inconveniences".[1] The Master Shipwright was allowed five apprentices, and his Assistants three; junior or petty officers were allowed at least one.[2] In 1780 sixty per cent of the apprentices at Deptford belonged to officers, and this figure underestimated the extent of the problem, because Sandwich had personally awarded nineteen apprentices to the ordinary shipwrights there as a reward for their loyal behaviour during the strike of 1775.[3] Over the years the proportion of officers' servants seems to have been increased. At Deptford in the 1740's there were only twenty-one apprentices belonging to officers, and 115 belonged to "deserving artificers".[4] It is difficult to account for this change. The growth in the number of petty officers, and the number of overseers to merchant yards (drawn from the ranks of the quartermen) which had increased during the war, would have contributed to the increase; but the main reason would seem to have been that successive administrations failed to keep the number of apprentices up to a realistic proportion. There is no doubt that this was overlooked during the first years of Sandwich's period of office.

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1. PP-CF, p. 307.

2. These had been allowed for a long time; see Ehrman, p. 97; PRO, IND 9315, 16 Sep 1675, 24 Jan, 9 Dec 1700, 13 May 1718.

3. PRO, ADM 106/3319, 18 Jan 1780; there was a total of 154 apprentices in the yard. The shipwright gangs drew lots for the extra apprentices (PRO, 106/3385, 1 Aug 1775). See also PRO, ADM 49/36, 30 Jul 1787, List of Sheerness officers and servants.

4. Quoted in Baugh, p. 320.

However, there was one abuse which the Navy Board was able to correct. Those apprentices entered to the carpenters of ships had "long been considered and complained of as an evil". Since the previous century these carpenters had been allowed to bear one of their two servants on the "Extra" Estimate while ships were building, repairing or laid up in ordinary. Thus the Navy Board reported that the servants, "have seldom opportunity of working at their trade above half the time of their apprenticeship, and serve the remainder either in Ordinary or at sea".[1] At the same time they were taking up valuable places in the number of servants that were allowed in the yard. In 1779 the Admiralty agreed to the Navy Board's suggestion to commute the carpenters' privilege for a pound a month.[2]

Almost as great a weakness was the way in which the principle of instruction by the master of the servant had become secondary to the fact that the indenture had become a piece of property to be exploited.[3] The relationship had originally been designed to be personal. Master and servant were placed next to each other on the muster rolls, and the master was accountable for

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1. NMM, ADM B/198, 5 Jan 1779.

2. ibid; SO(a), 811, 15 Feb 1779; PRO, ADM 174/17, 24 Feb 1779; SO(b), 242, 9 Dec 1783.

3. See Baugh, p. 318.

the servant's actions.[1] If an apprentice was discharged for a misdemeanour, then it was held to be the master's fault; only a petition to the Navy Board, with the yard officers' blessing, would enable him to be awarded another servant as a replacement.[2] If, on the other hand, a master was discharged, then his apprentice was discharged with him. In 1777 Gambier discharged a caulker on suspicion of theft, and he wrote to the Navy Board, "I could wish that (the servant would) serve out the remainder of his time to some other caulker, provided the master will give up the indentures, that a good young man might not be lost to the service".[3]

The most obvious way in which instruction was impaired by the overriding idea of the indenture as a piece of property was the number of apprentices in the yards without a master at all. The first reason for this was the frequent transfer of senior shipwright officers from yard to yard. Often they would take their apprentices with them, but it was not always possible. John Jenner, Master Shipwright's Assistant at Plymouth, was appointed as full Master Shipwright at Sheerness in 1778. He wrote to the

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1. PRO, IND 9315, 22 Mar 1669, 21 Ap 1664.

2. e.g. NMM, POR/D/23, 1 Ap 1782; PRO, ADM 174/18, 14 Aug 1780.

3. NMM, POR/F/16, 18 Jun 1777; also PRO, ADM 174/116, 26 Feb 1779; 174/19, 30 Aug 1782; NMM, CHA/E/32, 9 Jan 1776.

Navy Board to ask if, in order to complete his allotment of five apprentices, two could be entered at Plymouth, as it was difficult to get servants at Sheerness. He did at least add that he had a brother who was a quarterman, and that he, and the Foreman to the shipwrights, would instruct his new apprentices. The Navy Board granted this request, as it did to many others.[1] Again, this situation received sharp criticism from the Commission on Fees: "Upon no account should an apprentice be in a different yard from his master".[2] Of the seventeen shipwright apprentices without masters at Deptford in 1778, three belonged to officers who had gone to the Navy Office, seven were indentured to the widows of shipwrights, and four to those who had been superannuated. Two were bound to carpenters of ships, and one to a shipwright who had gone to serve at Halifax.[3] Just over a year later, the position had changed slightly. Of a total of twenty-three servants, none were apprenticed to shipwrights who had died, but the number bound to carpenters of ships had risen to nine, and there were six who had masters who had gone from the yard as overseers to merchant yards.[4] The Commission on Fees recommended that, "the indentures of all apprentices run so as that they may not become the property

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1. PRO, ADM 174/17, 11 May 1778; also 174/116, 15 Nov 1777; 174/18, 31 May 1779, 9 Mar 1780. Two were also entered at Plymouth for the newly-created Master Shipwright at Harwich (174/117, 11 Feb 1781).
2. PP-CF, p. 308.
3. PRO, ADM 106/3385, 30 Nov 1778.
4. PRO, ADM 106/3319, 18 Jan 1780. However, these figures represent a considerable decline of those who were masterless in the 1740's (see Baugh, p. 320).

of the person to whom they are indented or their heirs, but to be turned over to their successor in the yard".[1]

Over this chaotic system the Navy Board struggled to gain a hold. As it authorised the increase of apprentices, as the war continued it was able to tighten the procedure for recommendations for the awarding of servants. It first instituted a rule that apprentices should have a six weeks' trial before they signed indentures.[2] In early 1780 detailed instructions were issued ordering regular accounts of those recommended for servants to be sent in; they should possess, "sobriety, honesty, diligence and good abilities, good morals, of quiet deportment and not likely to join in disturbances in the yard".[3] Immediately after the war, the Board announced that servants were to be awarded strictly on merit; applications from artificers who, up to this point, would automatically expect a replacement for a servant whose servitude had expired would not be granted, unless the shipwright was on the list of "good men".[4] This list was to be the responsibility of the officers, and the Navy Board had told them that, "we shall look upon you as answerable for the behaviour of those you report deserving".[5] This scheme, however, was subject to the same

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1. PP-CF, p. 308.
2. SO(a), 836, 26 Ap 1779.
3. SO(a), 1056, 27 Jan 1780; also SO(a), 933, 8 Dec 1779; 1231, 19 Jan 1782.
4. CHA/E/34, 24 Feb 1783.
5. CHA/E/33, 17 Mar 1779.

weakness as Middleton's attempt to regulate promotions; it was too much to expect the officers to recommend men fairly and by merit. The Deptford officers rationalised their view by the assertion that, "we cannot be answerable for any person for so great a trust, but those brought up under our tuition".[1]

The result of taking on so many apprentices at the end of the war was that skilled labour was more plentiful during the next decade. The period after the American war was remarkable for the fact that there was no reduction of the workforce: "all the artificers were retained...instead of great numbers being discharged...as had been the case after former wars".[2] In spite of Howe's efforts at economy, Middleton managed to resist any reduction. In a long letter to the Admiralty in December 1783 the Comptroller put forward his case; trade by trade, he justified their being kept up to the wartime level. The numbers in the yards gradually dropped away by natural wastage. In December 1783 he reckoned that,

> On the whole every officer and every workman except those in the Ropeyards, who decrease daily, are kept fully employed; and it is our wish...to employ the present means to bring forward every part of the service in such a manner as may prevent that exorbitant imposition on the public. [3]

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1. 106/3319, 20 Ap 1779; see Knight, pp. 191-192.

2. Derrick, p. 181.

3. NMM, ADM BP/4, 8 Dec 1783.

With considerable skill, Middleton avoided committing himself to a specific number of men needed in the yards.[1] For every other aspect of the administration during this period a highly-organised establishment was laid down; but since the Comptroller wanted to keep as many men as possible in the yards, it seemed easier, in view of the hostility of Howe, to neglect to state how many would be ideal.

In spite of its considerable difficulties, the civil administration can be taken to task for its lack of success in providing an adequate amount of labour for the yards. Sandwich's excuse may have been correct in broad terms; there may not have been enough shipwrights in the country for all the work which the yards could have provided, but intelligent anticipation could have improved the situation. The Navy Board failed to break the eighteenth-century mould in its regard for economy; yet in its regard for precedent it did not take the labour shortages of previous wars into account. Nevertheless, it was difficult to force anything on the unwieldy and wayward organisation of the yards. The apprentice system was typical; as a means of providing a supply of trained men it was hopelessly outmoded for an organisation of the size and importance of the yards. However, the greatest hindrance

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1. The caulkers were eventually put upon a much increased establishment late in 1784 (SO(b), 343-5, 28 Oct 1784).

to improvement was the independence of the yard officers, whose interests were threatened by any one of the recommendations of the Commission on Fees. Of all aspects of administration at this time, the management of personnel produced the most distrust between the Navy Board and the officers; but it was the system rather than the individuals in it which was at fault.

Chapter Three. Pay and Working Conditions.

i) Pay and Allowances: Officers and Clerks.

Salaries and wages fully reflected the state of stagnation of the dockyard organisation, for they had remained unchanged since the previous century. The result of this failure to keep up with the slow inflation of the eighteenth century meant that officers, clerks and men received inadequate basic pay. This in turn was responsible for the growth of an intricate system of official allowances, while at the same time unofficial fees and gratuities had developed (as in other government departments) to the point where public disquiet finally demanded a Parliamentary investigation. The Commission of 1786-8, "appointed to enquire into the Fees, Gratuities... received into the several Public Offices", uncovered a situation of extreme complexity in the dockyards; its major finding was that almost exactly a third of the income of the officers and clerks came from contractors and not from the government. This figure was taken from the accounts of 1784 - a year of "profound peace" - which had the effect of underestimating these incomes from private sources by an indeterminate but very large amount.[1]

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1. The salaries and income from all sources during 1784 of the 3 Resident Commissioners, 33 principal officers, 66 "inferior" officers and 131 clerks can be found in the appendices of the Sixth Report of the Commission.

Inadequate and badly-administered pay played a large part in creating a lack of responsibility, inefficiency and downright dishonesty from the principal officers to the humblest workman.

The Resident Commissioners received five hundred pounds a year, with a coal and stationary allowance of twelve pounds a year. An unfurnished house was provided, for which only the Chatham Commissioner was provided with coal and candles.[1] Two pounds a day was allowed for comptrolling the pay of the fleet. In addition the Commissioner at Chatham received extra money for the supervision of the Chatham Chest,[2] and his counterpart at Portsmouth received a hundred pounds a year as Governor of the Naval Academy. All were allowed their half-pay as captains, thus bringing their incomes up to a comfortable level.[3] In 1784 Proby earned £623. 1. 0., the highest figure of the three commissioners; his basic pay of five hundred pounds was subject to a duty of £37.10. 0. on the civil list, but this salary was

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1. The Navy Board frustrated an attempt by Gambier to extend this privilege to Portsmouth (NMM, ADM B/189, 20 Mar 1775). This basic remuneration had not changed since 1684; see Ehrman, p.104.

2. The Chatham Chest was a fund founded in the sixteenth century, financed by prize money and by seamen's contributions, for the provision of yearly pensions for wounded or disabled seamen. For greater detail, see Ehrman, pp. 130 - 1.

3. The only Resident Commissioner to complain of financial hardship was Laforey at the time of his enforced hospitality to Prince William (BL, II, 135, 17 Feb 1786, Laforey to Middleton).

supplemented by £149. 9. 0. for comptrolling the pay of ships and by his half-pay of £178. In that year he received no money from the Chatham Chest.[1]

The salaries of the principal officers had undergone a few minor changes since the previous century, but the basic pay of two hundred pounds had remained the same since 1696.[2] At Sheerness and Woolwich the salary of the officers was £150, but in 1781 the Admiralty complied with a request from the Woolwich officers to bring their salaries to the level of the larger yards.[3] Acceptance of liquor from contractors was the general rule; the only gratuity admitted to the Commission on Fees was the five guineas accepted by the Master Attendant at Plymouth. The officers' income, therefore, was supplemented by official rather than unofficial allowances. The shipwright officers received the earnings of their apprentices,[4] while the senior clerical officers had accumulated a number of tasks through the century which were separately remunerated. The Clerks

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1. PP-CF, pp.362-4.

2. See Ehrman, p.599.

3. NMM, ADM A/2768, 26 Oct; A/2769, 20 Nov; A/2770, 21 Dec 1781; SO(a), 1128, 4 Jan 1782.

4. At the launching of a ship the Master Shipwright was presented by the navy with a piece of plate. This was sometimes commuted for money (e.g. PRO, 106/2592, 3 Mar 1775). The shipwright officer at Chatham had received £100 from this source in seven years, at a set rate of £30 for a first rate to £10 for a fifth rate and below (PP-CF, p.370).

of the Cheque received twopence in the pound for administering bounty and conduct money and the sale of old stores, and those officers at the larger yards received more money for mustering the marines. Sixteen pence in the pound was allowed to the Storekeepers for distributing money to the poor who picked oakum, fourpence for every thousand yards of canvas measured, and substantial amounts were received for issuing marine clothing and slops.[1]

The salaries of the officers were affected by minor duties and taxes. The land tax assessed on the Resident Commissioners and the yard officers was paid by the navy,[2] while the Commissioner at Portsmouth had his parish rates defrayed by the yard contingency account.[3] However, these advantages were offset by the five pounds which had to be paid to the Sixpenny Civil List, and the ten pounds to the Shilling Pension Duty, as was usual on civil salaries over a hundred pounds a year. The

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1. For income levels in 1784 see Appendix V; also PP-CF, pp. 330-1, 427, 463; SO(a) 829, 27 Mar 1779. Before 1778 the Storekeepers had been allowed five shillings a bale, but this had been unsatisfactory owing to cheating by the pursers. Yearly payments were substituted ranging from £100 at Portsmouth to £40 at Woolwich (NMM, ADM B/197, 4 Aug 1778). Allowances of coal for officers were increased during the war (PRO, ADM 106/2592, 1, 10, 22 Mar 1775; SO(a), 1143, 23 Mar; 1151, 8 Ap 1782).

2. e.g. NMM, ADM A/2702, 11 Ap 1776; A/2705, 18 May 1776; A/2777, 27 Jul 1782; SO(a), 789, 6 Jan 1779. The Resident Commissioners' exemption from the Land Tax appears to date from 26 Ap 1720 (PRO, IND 10665 (36c)).

3. e.g. NMM, POR/C/22, 31 Dec 1777.

anomolous position of the Resident Commissioners was reflected in their tax situation, for while they received their half-pay as commissioned officers, they were still subject to these two duties, from which serving officers were normally exempt.[1]

The officers were allowed various expenses. Each had a stationery allowance of between three and ten pounds and was provided with an unfurnished house. The principal officers were allowed ten shillings a day for travel, and lesser officers 6/8d.[2] Although the surveying of transports sometimes took the shipwright officers away from the yard,[3] the Master Attendants were the most frequent claimants under this head. The most regular accounts submitted were for the officers at Sheerness and Chatham for navigating ships up and down the Medway,[4] but the main reason for more lengthy periods of absence was for launching ships from merchant yards. There were other claims. For instance, William Nicholson of Portsmouth presented a yearly account for

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1. See Binney, pp. 73-4. The Commissioners were allowed their half-pay by "the usual oath being dispensed with by virtue of His Majesty's Sign Manual" (PP-CF, p.364).

2. e.g. NMM, POR/F/16, 31 Mar 1778. Purveyors were away for particularly long periods surveying timber (e.g. NMM, POR/D/21, 29 Dec 1778; PRO, ADM 174/117, 15 Sept 1780).

3. e.g. NMM, POR/D/23, 25 Nov, 20 Dec 1782; PRO, ADM 174/18, 13 Jul 1779.

4. This allowance was submitted to the Board which then had to have confirmation from the yard (e.g. PRO, ADM 106/2592, 10 Jan, 28 Mar 1775).

checking the position of buoys at ten shillings each,[1] and was careful to claim his ten shillings to which he was entitled for going to the rescue of a ship on a sandbank.[2] However, in many cases travelling expenses (in the words of one officer) were "barely equal to the expense incurred".[3]

The salaries of the 'inferior' officers formed only a small part of their total incomes. The Assistants to the Master Shipwright were each provided with a house, with a salary of a hundred pounds a year, and they doubled this from the earnings of their apprentices. In the cases of the more junior officers, fees and gratuities realised an increasing proportion of their income. The Boatswain and the Porter of the yard were each provided with a house, and gained from minor payments in a number of ways. The Measurers to the Clerks of the Cheque and the Storekeeper, paid at the basic rate of 2/6d. per day, averaged about two-thirds of their total earnings from their apprentices and from the gratuities of the contractors whose goods they measured. The most junior officers, the quartermen, gained only from the apprentice

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1. e.g. NMM, POR/C/22, 11 Jan 1777, 31 Dec 1778; POR/D/21, 26 Sep 1778.

2. NMM, POR/C/22, 29 Sep 1775.

3. PP-CF, p.355.

possession of an apprentice. Although the sum realised would vary according to the amount of time served by the apprentice, it would usually average well over a third of the quarterman's total income.[1]

While the Commission on Fees found that the principal officers took little in the way of fees and gratuities, it criticised the fact that they gained substantially, if irregularly, from selling the positions of their clerkships. The method of entry for the clerks was by a personal recommendation from the officer to the Clerk of the Cheque; the applicant would then be examined for suitability by the commissioner of the yard.[2] After the discovery of embezzlement in the Storekeeper's office at Portsmouth in 1773, the Storekeepers of each yard had to obtain Navy Board approval for their applicants.[3] In this attempt to bring the entry of clerks under control, the Navy Board was trying to break the long tradition of the master and servant relationship of officer to clerk. The abuse of entering young boys into the offices so that the officers could pocket the salary (apart from a subsistence payment) had largely

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1. e.g. In 1781 and 1782 the apprentices to the Sheerness quartermen earned an average of £46 out of the quartermens' average income of £116. See PRO, ADM 49/36, 30 Jul 1787.

2. e.g. NMM, POR/F/16, 24 Mar 1778; PRO, ADM 174/117, 15 Oct 1780, 3 Mar 1782.

3. SO(a), 633, 8 May 1773. In this order Sandwich took the unusual step of nominating a clerk to this office, and the clerks in the Storekeeper's office at every yard were required to pay on entry a bond of five times their salary.

died out,[1] but the idea of the clerk as an indentured servant still survived in the form of a large payment on entry to the officer known as a "premium". The Navy Board tried to prevent these payments in 1773, but a reissue of the order ten years later and the evidence given to the Commission on Fees, demonstrated that the custom remained unbroken.[2]

The yard officers produced an elaborate justification of the taking of premiums. The "ancient custom" of taking on apprentices, apart from "implying a benefit"[3] was, according to Peter Butt, the Clerk of the Survey at Deptford, the only way in which an officer could be personally answerable for his clerks. Referring to the 1662 Instructions, which expressly forbade the Storekeeper to trust his business to a deputy, he continued:

> We presume these deputies or servants can mean no other than the clerks, whom to bring up regularly in office, they formerly took as servants by indenture, and board'd them, for which as is usual in cases of taking servants by indenture they had a stipulated allowance from their friends, but from some family inconveniences that mode was changed for a consideration in money and the salary was paid to the individual. 4

1. See Baugh, p.300. John Greenway, the Storekeeper at Portsmouth, stated in 1773 that the last two clerks he had entered had been 18 and 23 years old, and that there had been an order of 1766 fixing the minimum age at 15. The youngest taken during the period appears to have been 16 (NMM, POR/F/15, 9 Ap 1773; POR/D/21, 30 Nov 1778).
2. SO(a), 633, 8 May 1773; SO(b), 2, 7 Jan 1783; The Commission on Fees recommended that premiums should be "totally abolished" (PP-CF, p.305).
3. NMM, POR/F/15, 9 Ap 1773.
4. PRO, ADM 106/3402, 12 Ap 1773.

Further, the premium was a reward to the officer to train his clerks carefully; it prevented "improper solicitations", and the money could be considered as a security for good behaviour. Most important, it made "the"officers easy and happy...by having such persons about them as they can confide in; without which it will be impossible for them to maintain any kind of authority over their clerks".[1]

The evidence given to the Commission on Fees showed that only Greenway, in whose office the embezzlement of 1773 had been discovered, had given up the taking of premiums.[2] Lip service had been paid to the orders elsewhere; the Storekeeper at Woolwich stated that, "although no premium is now bargained for... he has received the usual compliment of two hundred guineas from their friends.[3] The amount of the payment, according to the Clerk of the Survey at Portsmouth, varied according to circumstances, although two hundred to two hundred and fifty guineas was average for the period.[4] Immediate relatives, of course, paid nothing.[5] The determining factor

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1. ibid.
2. PP-CF, p.427. Pownoll at Plymouth had had no opportunity to receive a premium, although he claimed that he would have conformed to the order (PP-CF, p. 463).
3. PP-CF p.352; also p.399.
4. e.g. PP-CF, p.434.
5. e.g. PP-CF, pp.352, 382.

would be how much the clerk could amass from the office, but this could not be foreseen, since the income of the clerks depended almost entirely on the fees which could be gained, rather than the established salary. This sum was dependent in turn on the amount of business in the yard, which was further affected by the advent of a war.

An equally important factor would be the retirement prospects of the clerks already in the office, for this would affect the rise of a junior clerk until he reached the more lucrative positions. This difficulty could lead to additional expense, for occasionally the reluctance of senior clerks to apply for superannuation could be overcome by a consideration from those clerks who were to gain from their retirement. A further determinant of the amount of a premium was the likelihood of those clerks taken on as "extra" (or "unestablished") during a war being discharged, unless some means could be found to put them on the establishment. In these cases the family of the clerk would cover the risk by agreeing to pay the premium by instalments, or a relatively small premium would be paid on the understanding that it would not be recoverable if the clerk was discharged.[1]

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1. e.g. PP-CF, pp. 336, 384-5. It was undoubtedly a risk; one clerk was discharged in 1785 by which time the salary and emoluments he had received were less than the premium which he had paid to his officer (PP-CF, p.417).

Once the premium had been paid, and the clerk put on the establishment, he could regard himself as being relatively secure, for the premium came to be regarded as payment for the position, which was then considered as the clerk's own property.[1] Only those taken on as "unestablished" clerks could be discharged. A clerk at Woolwich told the Commission on Fees that because he was taken on as an extra clerk in 1762, he "was liable to be discharged... if the principal (officer) had quitted the office prior to the expiration of three years after this examinant was appointed".[2] In general, the premium secured the right to rise through the office, and no further payment was needed, but there were exceptions. When a vacancy arose in 1779 for the first clerkship to Commissioner Ourry at Plymouth, the second clerk expected automatic promotion, but Ourry claimed that he had been offered £800 for the post, and demanded £500 from the second clerk for the promotion; "upon intercession", however, the Commissioner was induced to accept £350.[3] A change of office could also involve complicated payments; although there was no conception of seniority among the offices, the amount of fees taken varied, and this sometimes acted as an inducement to the

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1. There seems to be no evidence to support Baugh's contention that the position of the dockyard clerks was not secure (Baugh, p.299). For a comparison see R.R. Nelson, The Home Office, 1782-1801, (Duke University Press, 1969), p.48.

2. PP-CF, p.348; also pp. 335, 355.

3. PP-CF, p.447. The Navy Board attempted further control in 1783 after the discovery of major negligence at Plymouth; it was to be informed of those clerks deserving promotion, and that they were not to "rise in rotation" without the Board's permission (PRO, ADM 174/19, 28 Jun 1783).

clerks to sell one office and buy another, although there was little movement between the offices and none at all between the yards.[1]

The amounts paid as premiums rose steadily during the second half of the century. One of the most frequently used formulas for arriving at a figure was to multiply the initial yearly salary of thirty pounds by seven, which was the traditional number of years of an apprenticeship, but from the 1760's the premiums became increasingly negotiable.[2] The average sum of all the premiums paid by the clerks who gave evidence to the Commission on Fees was £230, but the incidence of inflated amounts increased in the 1770's and 1780's.

The Commission on Fees investigated the system of payment in great detail, but only for the year 1784; consequently the incomes of the clerks during wartime remain doubtful. How different these incomes were between war and peace is indicated by the amounts paid for the premiums.[3] Peace affected some

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1. e.g. PP-CF, p. 324.

2. The high figure mentioned in the case of Commissioner Ourry's clerk was probably due to the fact that a house went with the position. This was exceptional.

3. There was talk of a fivefold increase in fees received by Navy Board clerks in wartime. See John Norris, Shelburne and Reform, (London, 1963), p. 209.

clerks more than others; those who received stores from the contractors suffered the most. In 1784 the second clerk to the Clerk of the Cheque at Deptford, who presided at the reception of stores from contractors, earned only £180. 0. 0d., while the clerk under him, who was engaged in mustering the men, had an income of £256. 2. 0d.[1] Mustering was the steadier source of income, but the earnings of the more senior clerk would have risen very sharply indeed when the stores needed for war were delivered.[2] The falseness of the picture given by the peace-time figures of 1784 is demonstrated by the premiums paid by the Plymouth clerks. These averaged £268, the highest of the six yards, yet in 1784 the earnings of the clerks at Plymouth were the lowest of all. At Deptford the average was £239, at Chatham £236, at Portsmouth £232; Sheerness and Woolwich represented the lowest totals, at £211 and £207 respectively. These figures indicate a truer relation with wartime incomes. A truer impression of the connection between the premium and total income is given by the premiums charged by the different officers. The Clerks of the Cheque at all the yards charged the greatest sums for their premiums, and the Clerks of the

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1. PP-CF, pp. 327, 328. See Appendix V for a sample of the salaries and total incomes of dockyard clerks for 1784.

2. Greater detail of the methods by which the clerks gained their fees and gratuities will be found in the appropriate chapters; i.e. for mustering, Chapter Two, and for the reception of stores, Chapter Four.

Survey the least; and the incomes of their respective clerks were in the same relation to these amounts.

The clerk's family paid the premiums as an investment for life, for the rewards did not come for a considerable time. The salaries paid to the junior clerks were hardly enough for subsistence; the fees to be gained with seniority were the only inducement to enter and stay in the service.[1] In 1779 one officer commented that the salary of the junior clerks was, "only a pittance which they must at least pay with present advanced price of every necessary of life, even to board with a reputable quarterman's family". [2] The Navy Board recognised that the salaries were low, and used this as an argument against premiums; a junior clerk could be very tempted to make up the money and to "betray the trust and confidence reposed in him". The reaction of Sandwich to the embezzlement at Portsmouth was to raise the salaries of all the clerks in the Storekeepers' offices by ten pounds a year.[3]

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1. The Plymouth Commissioner's junior clerk also noted that he was "obliged to employ an agent in town for receiving his own salary to whom he pays thereout 3d. in the pound, the Commissioner being considered one of the Navy Board, and his clerks' salaries consequently paid in London" (PP-CF, p.449).

2. NMM, POR/D/21, 1 Mar 1779. An enquiry by the Navy Board in 1778 found that clerks were not paid for extra hours worked, but the Board was as reluctant to allow this as it was to allow more clerks to be taken on (e.g. NMM, CHA/M/3, 21 Nov 1770; CHA/E/33, 5 Mar 1778; PRO, ADM 174/116, 8 Mar 1778).

3. SO(a), 633, 8 May 1773.

The initial salary of thirty pounds a year was not generally improved upon until a clerk reached second or third positions in the office; but once there, they gained well over two-thirds of their income from fees and gratuities, and had been doing so for most of the century,[1] although denials that the clerks had established fees were technically correct. In 1773 Butt found that, although the clerks had never demanded fees, "sometimes they inform us the merchants, for dispatch and extra attendance, make them a compliment", which annually ~~may~~ amount to £40-£50 for the first clerk, £30-£40 for the second and £15-20 for the third; the ~~third~~ fourth to the seventh had nothing.[2]

In January 1783 Shelburne proposed to double the clerks' salaries and abolish fees in the Navy Office, and it is here that first reaction can be found and resistance measured. Curiously, Middleton's first reaction was to say that abolition of the fee system was impossible, in spite of his known views on the subject, and he outlined the practical administrative objections. Apart from the fact that it would be unfair on the clerks at the Navy

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1. PRO, IND 9315, 7 Nov 1739, 16 Sep 1730, 12 Sep 1731, 14 Mar 1760. The most highly-paid clerk was the first clerk to the Clerk of the Cheque at Portsmouth. His salary was £45; in 1784 he received £360. In five cases clerks earned more than their officers (see Appendix V). The average proportion of salary to total income of the three senior clerks in the Clerk of the Cheque offices of all the yards was approximately a fifth, of the Storekeepers' (with the higher salary of £55) well under half, and of the Clerk of the Surveys' offices well under a third.

2. PRO, ADM 106/3402, 12 Ap 1773; also NMM, POR/F/15, 9 Ap 1773.

Office to be singled out as a "mark of reform", it was also unjustified because even junior clerks who, as yet, received no fees, had worked on a low salary in expectation of eventually receiving them. He also argued that raising salaries would start a round of increases in government offices which could not be afforded.[1] However, he proposed a "fee fund" for the office, but this scheme was taken up by neither Shelburne nor the Commission on Fees.[2] Middleton's volte-face demonstrated that he was not prepared to face the practical consequences of criticisms which he had been making for years.[3] The same could be said for Gregson, who had pointed out to Shelburne in 1777 that contractors added five per cent to tenders which they submitted to the Navy Board to allow for fees. Yet when Shelburne's proposals became generally known, he scribbled off a series of letters to his patron saying that the whole system of fees had been "magnified and misrepresented", and he outlined at length the difficulties of change. His most interesting criticism was that, since the Navy Board commissioners had the right of "selling the desks at the Navy Office", they ought not to know how much the clerks received.[4]

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1. See Norris, pp.208-10.

2. ShP, 151, no.40, 9 Sep 1782, Middleton to Shelburne; BL,II, 153, 18 July 1783, Middleton to Keppel.

3. Middleton's change of view may have stemmed from the fact that he "had nearly lost his head clerk, Mr. Davies..in consequence of demanding an account of his fees" (Add MSS 24135, 26 Sep 1782, to Shelburne).

4. ShP, 146, no.105, 30 Ap 1777; Add MSS 24135, fos. 64-66, 13, 22, 27 Sep, 3 Oct 1782.

The Commission on Fees found the system inefficient and confusing, yet its criticism was moderate. Its recommendation that fees be abolished was accompanied by proposals for a radical revision of the clerks' salaries; in other words, the Commissioners accepted that fee-taking was inevitable unless there was a substantial increase in salaries. Middleton had pointed out to Shelburne in 1782 that the smallness of the salaries, "greatly exposed the clerks to bribery"[1], and Pitt's failure to implement the findings of the Commission exacerbated the situation:

> Certain...it is that the clerks and dockyard instruments knowing or supposing their fees to be authorised by the Commissioners' enquiry, have become more exorbitant than ever in their demands, their attendance has become loose and uncertain and the discipline totally relaxed. 2

By the premium the clerk had bought the office, and by the office he had not only to recoup the initial outlay and compensate for early years of poverty, but he had also a right to exploit that office. This was, perhaps, the only compensation, for the life of the clerks in the yard offices was hardly very interesting. Little in the way of qualifications was needed, for they were engaged in nothing more than copying accounts and

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1. ShP, 151, no.40, 9 Sep 1782.

2. NMM, MSS 66/086, Observations on the Estimates of 21 Mar 1786. This memorandum by Middleton was probably written in the early 1790's.

letters; recommendations of "an expeditious hand" or good "character and morals" were considered adequate.[1] Although there is evidence of peacetime slackness[2], the hours of attendance during the war were long, especially in the western yards. One junior clerk at Portsmouth, noted that his attendance was, "from about six, or sometimes not before eight in the morning, till six o'clock or later in the evening, two or three hours for meals excepted; but in wartime his attendance was much earlier and till a later hour at night". Another stated that he worked "until late at night", and another, that dinners often had to be missed.[3] As early in the war as 1778, the Portsmouth Storekeeper reported that his clerks had worked on Sundays for the previous two years.[4]

Peter Butt argued that the double burden of a substantial premium and years of a low salary ensured that the clerks were,

> sons or relations of people in its neighbourhood who have acquired some fortune in trade or by family connections..without which in the junior clerkships from the small salary allowed by government it would be impossible to subsist, much more appear decent. 5

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1. NMM, POR/D/21, 22, 30 Nov 1778.
2. e.g. NMM, CHA/E/32, 24 Jan 1776.
3. PP-CF, pp. 423, 448, 429.
4. NMM, POR/D/21, 26 Oct 1778, 1 Mar 1779.
5. PRO, ADM 106/3402, 12 Ap 1773.

John Greenway recommended, "the son...of a grocer, and a very reputable inhabitant of Portsmouth", and another was the son of a captain in the navy; a third was the son of a "very responsible farmer".[1] However, there was also a tendency in the offices of the Master Shipwrights to have ex-shipwrights as clerks, resulting from the fact that many were employed at one time or another as clerks to cope with extra work.[2]

There was concern that the clerks were not of good enough quality. Middleton saw that lack of opportunity to rise beyond a clerkship as great a weakness as the paucity of the salary,[3] and the Commission on Fees recommended that those who were good enough should be given the opportunity to rise to the position of principal clerical officer. This, the Commissioners added, might "attract young men of good education into the service".[4] At this time, however, only three rose above the position of clerk. Digory Tonkin, the Commissioner's first clerk at Plymouth, was made Agent Victualler at that port.[5] Antony Munton, a clerk in the Storekeeper's office at Portsmouth, was appointed Storekeeper

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1. NMM, POR/D/21, 8 Mar, 22, 30 Nov 1778.
2. e.g. PP-CF, pp.324, 345, 349, 416; see Baugh, p.300.
3. ShP, 151, no.40, 9 Sep 1782.
4. PP-CF, p.308.
5. PRO, ADM 174/116, 8 Jun 1779.

at Jamaica,[1] while the well-connected Jacob Pownoll, who started as a clerk in the Storekeeper's office at Plymouth, returned as head of the same office some years later.[2]

This last example was exceptional, for the life of a clerk had no incentive to efficiency or effort other than that of gaining as much money as he could from his position. His duties had developed in the usual piecemeal fashion of the yards, and were in need of reform. The complex system of payment involved timewasting, and presented an open door to dishonesty; secure in his position, the living standard of the clerk depended directly on the advent of war and the health of the clerks above him. It is hardly surprising that personal responsibility and urgency were not characteristics which were often found in the dockyard offices.

ii) Pay and Allowances: Artificers and Labourers.

As in the case of the officers, the pay of the workmen had remained unchanged since the previous century; similarly,

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1. NMM, POR/D/21, 8 Mar 1778.

2. See above p. 79.

the basic wage was only part of a complex system of remuneration. Shipwrights received 2/1d a day, and the other skilled trades slightly less. The semi-skilled - those without an apprenticeship, such as riggers and sawyers - were paid 1/6d, while the value of unskilled labour was set at one or two pence over or under a shilling.[1] This immutable wage rate had always been supplemented by privileges or allowances, the two most important of which were the right of "extra" (or overtime) and the custom of taking "chips" - those pieces of wood which fell from the axe or the adze - out of the yard.[2]

The double evil of chips has received a good deal of attention from historians.[3] It was an extremely expensive method of supplementing the men's wages, for it was easy to cut good timber into almost worthless chips, while at the same time the custom made it easy for the men to conceal embezzled goods as they left the yard. Attempts to control it to manageable

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1. See Appendix VI. For the entire period this never approached the level of wages in merchant yards; in 1770 the basic wage of a shipwright in these yards was put at 3/6d a day. See W.S. (William Shrubsole), A Plea...in Favour of the Shipwrights, (Rochester, 1770), p.13.

2. The other two allowances were the wages of apprentices (see Chapter Two) and Lodging Money, allowed at the rate of 2½d per week by an order of 5 Ap 1699 (PP-CE, p.17).

3. See Ehrman, pp. 92-3; Baugh, pp. 321-2; Albion, p.87; Williams, pp. 395-396: D. Hannay, Ships and Men, (London, 1910), p.300.

limits completely failed,[1] and after the war, the Navy Board, not for the first time, suggested to the Admiralty that the custom be commuted for a money allowance. It reported that the men left off work half an hour early to cut up good timber, and that the bundles were often sold for a shilling, while costing the public twice that amount. The Board suggested that the allowance was worth fourpence a day for the shipwrights, and twopence to house carpenters and servants. The shipwrights themselves petitioned the Admiralty for this measure, but, as with most of the Navy Board recommendations to Howe at the Admiralty, the idea went the way of all previous attempts to curtail the custom, and nothing was done until 1801.[2]

The money which the men made from chips is impossible to calculate, but of the other major allowance, "extra", there is ample evidence. The basic unit of overtime was a "tide" of one and a half hours, for which the men received just under a third of a day's pay. In particularly busy periods a "night" could be worked; this period of five hours earned a full day's pay.

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1. e.g. PRO, IND 9315, s.v. "Chips", 10 May, 28 Jun 1662, 16 May 1667, 28 Oct 1669, 31 Aug 1739, 4 May 1753, 9 Jan 1759; SO(b), 172, 4 Aug; 196, 4 Sep; 202, 9 Sep 1783.

2. NMM, ADM BP/4, 1 Oct 1783 (enclosures of 25 Oct, 4, 14 Nov 1783). In 1770 Shrubsole had stated that for 2/6d a day the men would "cheerfully give up their right to the chips" (see William Shrubsole, A Plea, pp.22-3). In 1801 the shipwrights were allowed sixpence a day in lieu of the privilege, and lesser workmen between 4d and 3d (PP-CE, pp. 191, 193).

"Extra" was administered with care by the Navy Board, although in emergencies it could be authorised by the Resident Commissioner; as the war developed, control by the Board lessened, for pressure of events forced it to issue a general order to the effect that all workmen were to work as much as would be useful.[1] In slacker periods, however, the officers had to apply to the Board for permission to work the men extra to complete a particular task which had fallen behind schedule, or, more often, it was awarded to one section of workers to keep pace with the shipwrights. The exception to this central control was the general order in peacetime to give all the men permission to work one tide extra during the summer months to supplement the basic wage. The Commission of Naval Enquiry commented that this was, "rather to add to their daily wages, than on any account of any extra exertion being required".[2]

As a result there was considerable variation in the income of the men between peace and war, and summer and winter. An examination of the yard pay books for 1774 shows that the shipwrights were working a single tide extra for the two middle quarters of the year, but the necessity to employ the men for long hours in wartime dramatically increased their

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1. e.g. PRO, ADM 95/95, 30 Oct 1776; SO(a), 1131, 8 Feb 1782; SO(b), 79, 14 Ap 1783.

2. PP-CE, p.17. Every year, usually in April, the Navy Board sought the Admiralty's permission for this general order.

earnings. Shipwrights who earned about thirty-five pounds a year in 1774, were earning fifty-five pounds three or four years later, and in the western yards, where emergencies were frequent, many were earning considerably more. In general, the Commission of Naval Enquiry noted, the shipwrights were employed two tides and a night during the war. However, during 1783 wages gradually dropped back to pre-war levels.[1]

It was this costly and troublesome system that led Sandwich, in 1775, to introduce a payment system for the shipwrights based on incentive. With Navy Board support, he went against traditional prejudice in the yards which looked upon "piece" or "task" work as productive of inferior workmanship, and he hoped to bring wages to a level with those of the merchant yards, which paid their workers by task. Some yard workers, such as sawyers, ropemakers and labourers had long been paid on a task rather than a day basis, and between 1772 and 1774 labourers, scavelmen, joiners, bricklayers and house carpenters were all

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1. See Appendix VII for examples of this seasonal variations; also B. McL. Ranft, "Labour Relations in the Royal Dockyards in 1739", Mariners Mirror, 47, 1961, pp.283-4. The drop in wages at the end of the Seven Years War is confirmed by William Shrubsole, A Plea, p.2, also PP-CE, p.17. A full analysis of the yard pay books, which are complete for the Extra, Ordinary and Ropeyards for all years throughout this period (PRO, ADM 42), was not possible. These figures are based on a representative sample of the time worked. In addition there was the lodging allowance for skilled men, which was dependent upon attendance. This amounted to about 2/8d a quarter. Twopence a month was deducted for the surgeon's services, and in some yards the same amount was given to the chaplain.

put on comprehensive schemes of incentive payments.[1] To the First Lord, the advantages of task work for the shipwrights were obvious. At a stroke, the men would be made more productive, the "general clamour" for the increase of wages would be stopped and corruption would be eliminated by the spreading of incentive to all classes of workmen.[2] Unfortunately, the scheme, although bold and imaginative in conception, was implemented in a clumsy and overhasty fashion, and it resulted in widespread stoppages between May and August 1775.[3]

The task work strike of 1775 has recently been chronicled and analysised, and it is therefore unnecessary to do more than outline the dispute.[4] By June, ninety-five task gangs had

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1. PRO, IND 9315, 3 Ap 1758; SO(a), 604, 11 Jun; 619, 23 Dec 1772; 662, 2 Jun; 668, 31 Aug; 669, 16 Sep 1774; 675, 26 Ap 1775; 692, 1 Ap 1776; PRO, ADM 106/3551, 2 Sep 1772; PP-CE, pp.447-451. Ships had been broken up by task since 1749 (PRO, IND 9315, 24 Aug, 13 Dec 1749; e.g. ADM 95/95, 14 Jan 1774, 1 Mar 1775).

2. There had been attempts to petition the throne for an increase in pay in 1765, 1769 and 1772; an Order-in-Council was needed to alter the wages. See William Shrubsole, A Plea, p.2; also his, Christian Memoirs...with a life of the Author, (London, 1807, 3rd ed.), xliii; J.M. Haas, "The Introduction of Task Work into the Royal Dockyards, 1775", Journal of British Studies, VIII, 2, 1969, p.60.

3. Sandwich's claims for task work remained over-optimistic to the end. See SaP, IV, 288, 31 Dec 1781; 310 (undated), Palliser's critique.

4. See Haas, Task Work, pp.44-68. Haas bases his account on Sandwich's notes of the Visitation of 1775 (PRO, ADM 7/662). For a detailed but less accurate account see Williams, pp.392-417. See also the succinct account in the Commission of Enquiry, pp.18-21; NMM,POR/F/15, and PRO, ADM 174/115, April-Aug 1775.

been formed in the yards, representing 62% of the shipwrights.[1] Sandwich was beginning to congratulate himself, when on his Visitation to Portsmouth on 14th June he was faced with an angry crowd of shipwrights. Dissatisfaction soon spread to the other yards. Only Deptford remained outside the dispute and "embraced the new way"; Sheerness continued working, but the shipwrights there remained "as ill-disposed as the rest".[2] Although the Admiralty Board was firm with the strikers, it soon withdrew any compulsion to work in the new way. Nevertheless, the strike was not over until troops had been called in at Woolwich, and twelve men had been indicted for conspiracy at Maidstone Assizes; there was an intensity of feeling which prolonged the strike dangerously.

The scheme failed because it was difficult to administer and because too many people felt their interests to be threatened. The theory was simple; each gang was to be paid a set amount for a particular task irrespective of the time taken to do it. In practice this was difficult to calculate; the Master Shipwrights all submitted widely varying estimates of what the men should be paid for a particular task. The plan devised by Sir John Williams

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1. Haas, Task Work, p.51.

2. PRO, ADM 7/662, fo.63. Nearly half the shipwrights struck, but they represented the better half, for task gangs were ordered to be formed of only the strongest and best men. Only a few day gangs struck.

in March 1775 was twice completely revised within nearly a year, and there were frequent minor amendments.[1] To combat skimping and bad workmanship a rigorous system of checks was introduced; this could be another source of trouble.[2] The application of the system to repairs (called "job" work) threw the responsibility of assessment of the men's wages to the officers on the spot, and the men also feared favouritism in the alloting of particular gangs to easier tasks.[3] There was a further difficulty of keeping those gangs still working "by the day" at the same pace as the taskworkers, and there was some doubt over how the men should be paid if they were taken off a task onto another in an emergency.[4] Finally, the quality of the material was uncertain and could interrupt the work; the first sign of trouble arose from a piece of timber which split at Chatham, and this remained a source of discontent.[5]

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1. SO(a), 673, 23 Mar; 674, 11 Ap; 684, 22 Aug 1775; 693, 3 May; 694, 1 Ap 1776; PP-CE, p.352 ff.

2. e.g. NMM, POR/F/16, 30 Ap, 10, 11 May 1776.

3. e.g. PRO, ADM 106/3319, 26 Feb 1779; ADM 106/3472, 29 Oct 1782. The Commission of Enquiry found the men's earnings "very disproportionate", and that the prices fixed for large ships too high, and for small ships too low (PP-CE, p.19). For the officers' difficulties in assessing job work see PP-CE, p.396.

4. SO(a), 739, 21 Mar 1778; also SO(a), 696, 20 Jul; 697, 22 Jul 1776; NMM, CHA/E/33, 21 Mar 1778.

5. PRO, ADM 7/662, fos. 13-15; ADM 106/2592, 19 May 1775. The Master Shipwright at Deptford reported that the shipwrights did not risk using "straight pieces, as there is no allowance" if they broke (PRO, ADM 106/3319, 7 Oct 1780).

The scheme quickly gathered formidable forces against it. Any eventual success depended upon overcoming the prejudices of the officers, who were against anything which would interrupt the smooth running of the yards and which would involve them in extra work. The clerks, too, were likely to oppose any scheme which would take away existing opportunities of exacting money from the men. Sandwich feared the influence of the merchant builders, who, he claimed, were apprehensive that wages in the royal yards would eventually rival their own; the men who had been, "bred up in the merchant yards, are now under the influence of their former employers, and have thro' their insinuations been active in prejudicing the men against the plan".[1] Blame was also attached to the influence of American agents, but although they may have had some effect in prolonging the strike at Woolwich, there is no evidence that they intended to do anything more than to attract shipwrights to America.[2] Nevertheless, the shipwrights' petitions had the ring of the American cause in them. At Plymouth the petition began: "To avoid slavery brings the determination of an oppressed people..."[3]

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1. PRO, ADM 7/662, fo.61.

2. ibid, fo.65. See H.B. van Tyne, "A British Strike in 1775", The Michigan Alumnus; Quarterly Review, XLV, 1938-9, pp.157-164, for an interesting account of these activities based on the Wedderburn papers in the William L. Clements Library, Michigan.

3. PRO, ADM 7/662, fo.26. At Plymouth the strike was particularly bitter, and there is little doubt that the issue here came to be nothing less than a demand for a basic wage of 2/6d per day. See Trewman's Exeter Flying Post, 16-23 June, 7-14 Jul 1775. I am grateful to Mr. John A. Woods for this reference.

Finally, what has been called the "irrational" fears of the men themselves must be examined.[1] No effort was made to inform the men of the exact intentions of the administration, since there was no idea of cultivating healthy labour relations. If the scheme had been anything like as successful as Sandwich hoped, it would have resulted in reductions in the labour force. The First Lord was wisely against this, but it remained a potent fear amongst the men. There was considerable apprehension of the effect of the short daylight hours of winter and bad weather on the men's output. In addition there was also a peripheral misunderstanding on regulations for sick pay, which Sandwich managed to clear up.[2] Over all these points he took considerable care in refuting criticism; yet the shipwrights stayed out for a long time after his answers had been made known. It is evident that the struggle was more deep-seated than a threat to a way of working.

In spite of the shipwrights' successful resistance to the wholesale introduction of task work in 1775, more and more work was being done in this way throughout the war. There was no trouble from the rest of the workers, and the caulkers were

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1. Haas, Task Work, p.61; Williams, p.422.

2. PRO, ADM 7/662, fos. 37-8.

admitted into the scheme on their own request.[1] The number of shipwrights "working task" grew in the eastern yards; by 1781 there were six gangs at Chatham.[2] In late 1779 the Navy Board again exerted pressure on the western yards, but with little success; at Plymouth especially, in the words of Ourry, the shipwrights remained with a "sullen, determined resolution".[3] Here the Board encouraged shipwrights to work in the new way by awarding servants to any men who would do so; the answer of the majority was to run them out of the yard.[4] In a last effort before the end of the war, Ourry reported optimistically that, "I hope we shall soon have a majority in favour of job work", but by March the following year Lecras wrote that, "not a man has offered to work either by the Job or New work and that the spirit of obstinacy still remains amongst them".[5] However, an order of January 1783 to the effect that all "extra" was cancelled, except to those shipwrights working by job or task,

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1. Caulkers were ordered to work by the day because work had been skimped (SO(a), 561, 12 Dec 1770), but on a petition were allowed to work task on new work in 1775 (PRO, ADM 106/2592, 21 Ap 1775) and eventually on all work (NMM, POR/D/22, 11 Jul 1780; PRO, 106/3320, 20 Ap 1782; SO(a), 1153, 19 Ap; 1208, 1 Nov; 1217, 27 Nov 1782; SO(b), 236, 3 Dec; 238, 5 Dec 1783).

2. NMM, CHA/E/33, 23 Jan 1781.

3. NMM, POR/G/1, 29 Sep 1779; also POR/A/29, 3 Nov 1779; PRO, ADM 174/116, 3 Oct 1779; 174/117, 25 Oct, 3 Nov 1779; 174/18, 3, 7 Nov 1779; NMM, POR/D/23, 27 Mar, 23 Ap 1782; PRO, ADM 174/19, 6 Nov 1782.

4. PRO, ADM 174/117, 7 Ap, 5 May 1780.

5. ibid, 18 Oct 1782; ADM 174/118, 25 Feb, 11 Mar 1783.

induced all the other yards to submit, and by the end of 1783 five of the yards were "working task". Plymouth, however, resisted until 1788.[1]

The inadequacy of wages and the payment system in the period of the American war goes a long way in explaining the dissatisfaction and lethargy of the men in general, and of their resistance to Sandwich's measures in particular. Although promptness of payment had improved considerably from the early part of the century, the quarterly pay was always late, especially at Plymouth. The consequence was a heavy dependence upon "dealers", to whom the men sold their wages at a discount. In 1770 Shrubsole reported that: "Every shipwright that takes up his money on usury or by assignment (and it is almost impossible to avoid it) suffers a loss of almost forty shillings a year, which is upward of three weeks pay".[2] In 1775 the Plymouth shipwrights asked for a limit of six weeks delay. Sandwich was surprised at this complaint, and could only point to the improvements that had taken place since 1772. This demand has been seen as "an indication of the irrational nature of the strike", but the Christmas wages of 1774, ready for transport by the middle of March 1775, were delayed by a not unusual

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1. SO(b), 16, 27 Jan 1783. Job work on repairs was restricted after the war (SO(b), 76, 12 Ap; 100, 15 May; 236, 3 Dec 1783; 291, 5 Ap 1784; see also PP-CE, pp.20, 298-300).

2. William Shrubsole, A Plea, p.19. When the wages were again late in 1778, Ourry reported that, "their creditors have raised 3d in £ discount" and money was "so scarce here (that) they cannot get it at any rate to subsist their families (PRO, ADM 174/116, 28 Jul 1778).

piece of maladministration concerning shipping between the two boards in London. By 8th April the wages were still at Portsmouth, and there was a further delay while the Admiralty ordered another ship. It could hardly have reached Plymouth until May.[1]

However, the basic weakness was the low daily wage which left the men dependent upon chips and extra work, in addition to their income, for a living wage. Although perquisites often went to make up real wages in the eighteenth century,[2] they seldom reached the importance of those in the dockyards. The dependence of the men on these extra allowances is reflected in Ourry's report to the Navy Board in late 1782 that many shipwrights had left Plymouth yard,

> and I have great reason to suppose that several more will follow the same plan. It is reported they are going to work in the River. I am informed the reason they give for leaving the yard is that every article of provision...is so dear ~~that~~ they cannot subsist on a single day's pay. 3

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1. See NMM, ADM B/189, 22 Mar 1775; A/2690, 10 Ap 1775; PRO, ADM 106/2592, 8 Ap 1775; Haas, Task Work, p.61. Haas's argument that wages had increased indirectly through prompter payments is therefore inaccurate.

2. See E.W. Gilboy, Wages in Eighteenth Century England, (Cambridge, Mass, 1934) p.20.

3. PRO, ADM 174/117, 11 Oct 1782. As a result of the Navy Board's order cancelling all extra except to those shipwrights working by task, the wages at Plymouth dropped very rapidly (see PRO, ADM 42/894). However, pressure to work task was resisted by the Plymouth shipwrights.

Thus the extra allowances had become a vital part of the real wage, and as might be expected, the men were very quick to the defence of these privileges, and very suspicious of anything which appeared to threaten them. For example, when the shipwrights at Portsmouth were read the Navy Board order on the control of chips in 1783, "they in a body refused complying with it...and their determination seemed preconcerted as the officers could not discover any individual more active than the rest".[1] Disputes over pay therefore became disputes over privileges, of which the task work episode was the most disruptive.[2]

In addition, it was not apparent at the time of the strike that the new scheme would benefit the men. In 1778 the Plymouth shipwrights were still earning more by day pay and "extra" than were the Deptford taskworkers, although, it is true, taskworkers at the western yards eventually earned six shillings a day.[3] Viewed in this light, the reaction of the men in 1775 seems more understandable, especially as, at the obstinate western yards, their earnings from "extra" was very much more than in the eastern yards. The men were in fact defending their

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1. NMM, ADM BP/4, 11 Sep 1783.

2. See also PRO, ADM 106/3320, 17, 20 Aug 1782.

3. e.g., NMM, POR/D/23, 2 May, 11 Sep 1782; PRO, ADM 42/568. Even at the height of the war these wages could not match those paid in merchant yards, which, the Navy Board commented, "has inclined many shipwrights to leave the King's Yards" (NMM, ADM BP/3, 15 Oct 1782).

real wages, for while they accepted that they would get extra money for task work, they rightly saw that it would be not enough to compensate for the greater effort, or, as they put it, they were not prepared to commit, "progressive suicide on our bodies".[1]

The Commission of Naval Enquiry summarised their findings by saying that the scheme of 1775 was hastily implemented. That the implications of task work not fully worked out was proved by the difficulties which became apparent as the war progressed.[2] It was unfortunate for Sandwich that the scheme came at a time when the men were convinced that they held the whiphand because of the mobilisation, and when, according to one view, the shipwrights were finding some difficulty in maintaining,"their well-marked, though humble, position in society".[3] Since the basic wage was subject to no market force, it was to their allowances that the men looked to for compensating for the

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1. PRO, ADM 7/662, fo. 36.

2. See PP-CE, pp.18-19. Sandwich did not see the full implications of an incentive system, for not only was a limit set on total earnings, but the men were not allowed out of the yard when they had finished their task; for which, the Commission of Enquiry commented, "we can see no good reason" (PP-CE, p.19).

3. H.E. Richardson, "Wages of Shipwrights in H.M. Dockyards, 1496-1788", Mariners Mirror, 33, 1947, p. 273.

increased cost of living.[1] When they were threatened, the opposition of the men was predictable. The scheme of task work was too frail and too carelessly implemented to overcome the prejudices which had been moulded by an entrenched but inadequate and illogical payment system. It has since been learnt that in this country any comprehensive incentive system is difficult to administer successfully; in an organisation lacking essential central control over a craft which involved working with an unpredictable material, anything more complicated than payment by the day was almost bound to fail. It is not surprising that in the 1790's task work became liable to more abuse than was ever experienced under the old system.

iii) Minor and Occasional Benefits.

Although the basic pay and salaries remained unchanged throughout the century, some improvement was made in 'fringe'

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1. Gilboy finds a consistent increase in craftsmen's wages in or by the 1770's (Gilboy, pp.10, 12, 23, 95, 104-9). See also Phylis Deane, The First Industrial Revolution, Cambridge, 1965), pp. 244-5; M.D. George, London Life in the Eighteenth Century (London, 1925), pp.160-170.

benefits. The most important was the superannuation of both workmen and clerks, which was first introduced in the 1760's and 1770's. Started for the workmen by Egmont in 1764, the scheme was limited to quartermen, shipwrights and caulkers of thirty years' service in the yards, although those who had been disabled were exempt from this rule.[1] In 1771 the scheme was extended by Sandwich to include one in forty rather than one in fifty of the workmen, "being very necessary at this time to prevent them leaving the King's yards".[2] The pensioners were divided into three classes, with the higher-paid workmen receiving a correspondingly higher pension. All the pensions were approximately two-thirds of their basic pay.[3]

Yard labourers, ropeworkers and sawyers were admitted into the scheme on their own application, but a petition from the smiths was refused, and a number of workers in the unskilled categories remained outside the scheme throughout the period.[4]

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1. PRO, IND 9315, 14 Jun 1765. See J.M. Haas, "The Royal Dockyards: the Earliest Visitations and Reform 1749-1778", Historical Journal, XIII, 2, 1970, 200-1; also [illegible] Williams, pp. 398-399.

2. PRO, ADM 7/659, fo.20.

3. SO(a), 580, 4 Oct 1771.

4. NMM, ADM B/185, 1 Oct, 11 Dec 1771; B/186, 1 Jan, 18 Feb, 25 Aug 1772; also ADM A/2784, 25 Feb 1783; A/2785, 17, 27 Mar 1783; POR/G/1, 10 May 1782.

In 1783 seamen of the ordinary were allowed a pension at the labourers' rate of sevenpence a day - a measure which was particularly needed.[1] The clerks from the yard offices were allowed pensions from 1773, in most cases on their full official salary.[2]

The Admiralty kept the awarding of pensions firmly in its hands. The Navy Board received quarterly lists of those workmen, "who were considered proper objects for superannuation" from the yard officers, which it sent on to the senior board. The list was then marked by the Admiralty and returned to the Navy Office. The Clerk of the Cheque at each yard would then be informed of the successful applicants, for which he would apply for an imprest to pay them.[3] Officers and clerks received more individual attention, for they were required to petition the Admiralty directly. This board would then apply to the King-in-Council for the pension, having been advised in turn by the Navy Board, the Resident Commissioner and Surgeon

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1. NMM, ADM BP/4, 23 Sept 1783.

2. ibid, 27 Jan 1783; this had come about almost accidentally as a result of the precedent set by the measures that Sandwich had taken after the discovery of embezzlement in the Storekeeper's office at Portsmouth in 1773 (SO(a), 633, 8 May 1773).

3. e.g. PRO, ADM 106/2592, 3-7 Jan 1775. By an order of 1784 the pensions were to be paid out of contingency money instead of special imprests (SO(b), 294, 14 Ap 1784).

of the relevant yard that the applicant was suitably qualified. Pensions were invariably granted (although the process usually took some months) by Order-in-Council on the "Ordinary" Estimate.[1]

Although superannuation went some way to eliminating senility from the yards, its effect was limited by several factors. Any idea of forcing an officer or clerk to retire was alien to contemporary notions of office and property, and there was an understandable reluctance, particularly in the case of the clerks, to apply for a pension based on their official salary when this constituted only a small part of their income. Some of the officers were of a great age. The Storekeeper at Portsmouth at the time of the Commission on Fees had been in the service for sixty years.[2] Sir John Williams, the Surveyor, should have applied for a pension long before he did.[3] Eight officers applied for superannuation between 1775 and 1783, of which only one was a clerical officer. The

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1. Leake Grimes, the chief clerk to the Master Shipwright at Chatham, was granted superannuation between April and June 1775. The following references demonstrate the complexity of the procedure: NMM, ADM A/2690, 27 Ap; A/2691, 22 May; NMM, B/189, 5 May; PRO, ADM 106/2592, 5, 26 May, 7 Jun; ADM/3/81, 8 May.

2. PP-CF, p.426.

3. NMM, ADM BP/5, 15 Nov 1784; see also ShP, vol.151, no.87, 2 Sep 1782, for Gregson's opinion. The shakiness of Williams's signature throughout the period indicates general debility; he had been 68 years in the service.

principal officers received £100 for a pension (half their salary), and junior officers £80.[1]

The incidence of retirement among the clerks was even less, even though they retired on their full salary. Only five clerks retired on a pension between 1775 and 1783, out of a complement of about a hundred and twenty.[2] When they did, it was often far too late; one clerk at Portsmouth had, "inveterate asthma" and rheumatism", and had been in the office for fifty years.[3] Their reluctance to leave office is demonstrated by a case at Plymouth where three junior clerks contributed a hundred pounds to induce a senior clerk to retire.[4] In the same yard there was a clerk who told the Commission on Fees that, "since he has been second clerk he has not been employed in any part of the duties of this office, having been absent for six years, with the Storekeeper's leave, on account of the ill state of his health".[5]

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1. e.g. NMM, A/2694, 9 Aug 1775; ADM A/2700, 29 Feb 1776; A/2704, 19 Jun 1776; A/2748, 3 Feb 1780. It is possible that the attraction of Deptford yard for the senior technical officers was that much less physical work was needed than at the busier yards of Portsmouth and Plymouth, and that it was used to pension off senior men. At the same time their experience was accessible to the Navy Board.

2. e.g. NMM, ADM A/2690, 27 Ap 1775; A/2691, 2 May 1775; A/2712, 1 Feb 1777.

3. NMM, POR/G/I, [illegible] 22 Jun 1776.

4. PP-CF, pp. 463-5; also pp. 435-7.

5. PP-CF, p. 464.

The effectiveness of superannuation for workmen was limited by the failure to provide for all who were eligible, and by a reluctance of the officers to enforce, and the men to accept, the scheme. Sandwich improved the ratio of men allowed a pension from one in fifty to one in forty, for during his first visitation in 1771 he found many men kept on in the yards "out of compassion".[1] In fact, even Egmont's scheme had not been fully used; at Portsmouth in 1771, for example, there were only seventeen on the superannuation list at a cost of £88. 3. 9d a quarter. After Sandwich's efforts the number rose to forty-three by the next year, and by 1773 the cost had risen to £687.16. 6d a year.[2] Nevertheless, although the ages of the oldest men who applied for superannuation during the 1770's did decrease, this increased expenditure was found inadequate. Men applied unsuccessfully for years. In 1783 a shipwright was still seeking a pension after, "a fall into the well of the Modeste about 1768...(and) ...was so much hurt in the back and loins as to be incapable of duty".[3] By limiting the number of pensions to a fixed proportion of the workforce, the number of men who received pensions each

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1. PRO, ADM 7/659, fos. 36, 75, 95.

2. PRO, ADM 42/1474, Superannuation lists, Portsmouth, 1765-1803. For the other yards see ADM 42/363, 623, 1041, 1474, 1721, 2059.

3. NMM, POR/D/23, 12 Oct 1783.

year was dependent upon the death rate of those who already received them. Thus Samuel Allin, a retired quarterman from Portsmouth, received six pounds a quarter from August 1772 to December 1798, in which time he effectively kept others from receiving pensions.[1] In the Visitation of 1784 the officers at Portsmouth complained to the Admiralty Board that, "superannuation in this yard does not bear a proportion to the number of men in it by the establishment being one in forty", and the Board found,

> several old men...who have been represented as objects of superannuation, several of whom were mustered for their day's pay without appearing at the Clerk of the Cheque's office, and others who do attend, but are past doing any work equal to their wages. 2

This complaint was similar to the one made by Sandwich in 1771, and it would thus appear that his scheme had been ineffective. In fact, in the early years of his administration, and under his close supervision during the Visitations, considerable progress was made, and in 1773 he observed that, "the late extension of the superannuation will shortly ease us of all the useless hands".[3] As the war progressed, however, the scheme

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1. PRO, ADM 42/1474.

2. PRO, ADM 2/261, fo.99, 110; see also PRO, ADM 106/3222, 8 Aug 1785; PP-CE, p.196.

3. PRO, ADM 7/660, fos.10-11.

began to lose its effectiveness. While the total number of workmen rose sharply, the number superannuated, instead of increasing in proportion, fell substantially. For example, by 1783 the number of pensions to workmen at Portsmouth totalled only twenty-seven, but at the proportion of one in forty, fifty-eight should have been on the list.[1]

The system by which workmen were selected for superannuation was for the yard officers to submit a quarterly list to the Navy Board, which passed it on to the Admiralty. During this period these lists usually contained between ninety and a hundred and forty names, and of these, the senior board, keeping within the proportion, chose between five and thirteen names. The basis upon which the Admiralty made its choice is not apparent.[2] Age was insufficient as a criterion, for there were injuries to younger men to be considered, as work in the yards was both wearing and dangerous. Those engaged in close work, such as sailmakers, often had their "eyesight much impaired", and the constant exposure to the weather resulted in many cases of

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1. PRO, ADM 42/1474.

2. NMM, ADM A/2675-2806, B/189-BP/4. In 1778 the Navy Board complained that the Admiralty had awarded a pension to a workman who was capable of being a cabin keeper and had been one for seventeen years. The Admiralty retorted that the junior board should not put anyone on the lists who was not eligible (NMM, ADM B/197, 21 Oct 1778; PRO, IND 10704 (18), 2 Nov 1778).

rheumatism and asthma. Many were listed as "worn out" or "very debilitated". There was constant danger in working in the yards, and accidents took their toll; "lost a leg launching a mast" and "lame by a scald by falling into the boiler" were two of many examples.[1] One apprentice had,

> several escapes from sudden and violent death. Once, he fell from the side of a ship, then on the stocks, and was preserved by a scaffold, at some distance from the ground. At another time, he fell headlong from the side of a wharf into a dock, among several boats and lighters. Had he struck against any of them, he must have been instantly killed; but he fell between them into the water. 2

The real weakness of the superannuation scheme was at the yards themselves. It was impractical to order the yard officers to be firm, as the Navy Board did in 1772: "we must leave this matter in some degree to your discretion...so soon as you find them upon the decline..you are to discharge them".[3] There was a natural reluctance for the officers to discharge men who had spent a life-time in the yards, for even if a pension was awarded, it was only two-thirds of their wage - and the odds against being chosen by the Admiralty were large. The increased demand for labour during hostilities, as well as the substantial amount of extra work available, also acted as inducements to stay on in the service. Some-

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1. NMM, POR/D/21, 14 Ap 1778; POR/D/22, 4 Aug 1780.
2. William Shrubsole, Memoirs, xx.
3. SO(a), 609, 26 Aug 1772.

times a compromise was reached by employing old men on tasks which required little physical effort, but of these there were a limited supply. The Navy Board was aware of the problem; it ordered the Plymouth officers in 1783 to employ those who were "incapable", "in the best manner they can, so as to be of the most use their health will admit".[1] In effect this was admitting that superannuation had not answered, for the number of men superannuated dropped slowly away after the Visitations, and although the extension of the scheme to the Ordinary caused a rise in 1783, it was clear that Sandwich's plans had not been fully carried into effect.

Although the scheme had some success, the central administration failed to appreciate the advantages in cost and efficiency of unlimited superannuation. For instance, in 1775 the officers at Portsmouth wrote to the Board requesting a pension for one of the two blockmakers of the yard, and that another be entered, "in order to enable us to keep pace in this branch". A year and two letters later, both of which complained that the service was "greatly distressed", the Navy Board had done nothing.[2] The reluctance of the Board to hire more workers

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1. PRO, ADM 174/118, 21 Mar 1783; see also Baugh, p.320. They were mostly given light work in the form of "mooting treenails"; this was the manufacture of cylindrical wooden pins by means of an adapted plane called a "moot". Treenails, or "trunnels", fulfilled the same purpose as a bolt. See William Falconer, A Universal Dictionery of the Marine... (London, 1780), p.298.

2. NMM, POR/D/20, 31 Aug 1775, 1 Nov 1776.

than the Estimates allowed, together with the prospect of the immediate cost, deterred the central administration from taking the full step of unlimited superannuation. Nevertheless, there was by now an awareness of the effects of senility and absence of both workmen and clerks. "The public", the Clerk of the Cheque at Plymouth was informed by the Board, "cannot be at the expense of retaining clerks who cannot do their duty".[1] Sandwich was only too well aware of the workmen who were "an incumbrance upon the public".[2] But it was unlikely that the problem of senility in the yards would have been solved by a limited scheme, which in any case was unenthusiastically administered. What was needed was unlimited superannuation, but this was not introduced until the Napoleonic wars, while the idea of a specific age for retirement did not arise until the nineteenth century.[3]

It was during this period that some regulation was applied to the granting of leave of absence from the yards, although there was still a good deal of discretion allowed, for there was no distinction made between absence for reasons of health and

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1. PRO, ADM 174/117, 25 Nov 1781.

2. SO(a), 609, 26 Aug 1772.

3. I am grateful for these two points respectively to Professor J.M. Haas and Mr. J.A. Saintey.

absence for personal or business affairs. The Resident Commissioners were required to obtain permission from the Admiralty, which invariably agreed to such requests. Gambier was regularly absent attending business in town, and Martin and Ourry had frequent periods of leave owing to their health. The pressure of business during wartime reduced these applications, and the Commissioners were forced to use the privilege sparingly, for prolonged absence could bring every sort of business to a halt.[1] As it was, every time the Commissioners went from their yard, the Admiralty had to order the Navy Board to empower the yard officers to comptrol the payment of ships' companies.

Much the same rules applied to the officers, although leave was granted for them by either the Commissioner or the Navy Board. The Commissioner was empowered to grant a fortnight's leave if he felt that the officer's absence would not cause undue inconvenience; permission for an extension after two weeks had to be obtained from the Navy Board.[2] There were frequently long absences on account of sickness. The Clerk of the Survey at Chatham was continually ill; he was granted leave

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1. A Commissioner from the Navy Board substituted for Ourry and Proby when it was known that they would be absent for some time.

2. See SO(b), 167, 1 Aug 1783; also PRO, ADM 174/116, 15 Aug 1777, 28 Jun 1779. In the first six months of 1775, thirteen officers successfully applied for leave (PRO, ADM 106/2592).

in June 1775 by the Board, but the reply was minuted, evidently with some irritation,

> acquaint him that he should have made his request personally, being ordtrected to to do by Commissioner Proby, and that we cannot in future comply with his applications to be so frequently absent from his duty. 1

However, when the Admiralty Board visited Chatham the next year it discovered that the Clerk of the Survey had been absent for six weeks.[2]

By a Standing Order of 1774 the Navy Board limited the workmen to a week's absence, or in the case of sickness, a month; otherwise they were to be discharged. Any exceptions to this were to be submitted to the Board. By the same order it also regulated the procedure for the granting of sick pay for those who were absent through "hurts" received in the yard. Petitions were to be sent to the Board; "we reserve to ourselves to determine in what cases they shall be allowed any part of their absent time upon...being properly certified"...by the surgeon".[3] Only the most deserving cases were allowed this privilege.[4]

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1. PRO, ADM 106/2592, 27 Jun 1775.

2. NMM, ADM A/2705, 26 Jul 1776; see also NMM, ADM B/193, 30 Jul 1776.

3. SO(a), 665, 22 Jul 1774; e.g. PRO, ADM 106/1230, 24 Jun 1775; ADM 106/1226, 2 May 1775; ADM 174/17, 13 May 1777; NMM, POR/F/17, 13 Aug 1778.

4. e.g. only four out of six cases were allowed in the first six months of 1775 (PRO, ADM 106/2592, 10 Jan, 15, 22 Feb, 14, 28 Mar, 17 Ap 1775).

Another form of security was the issue of "protections" against impressment to the artificers. These were issued by the Clerk of the Cheque and either the Master Attendant or the Master Shipwright; the Board had, on more than one occasion, to warn the officers not to be too free with issuing these protections.[1]

A similar privilege was exemption from the militia. In a complicated case in 1778 one of the contracting sailmakers who worked in Portsmouth yard had been balloted for and elected to serve in the militia. According to the Militia Act, those artificers who were, "mustered, trained and doing duty in any of His Majesty's docks" were exempt from service; this case hinged on the interpretation of the word "trained". The militia had their way, but the case caused such a stir in the yard that the Deputy Admiralty Solicitor at Portsmouth had to go to London to see that a clause of exemption was added onto the next Militia Bill. Hood was fearful of the precedent; the men were grumbling, "and they look on every person in the dockyard to be liable to serve".[2] The reaction of the men demonstrates the importance which they attached to these privileges.

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1. The dispute over protections in 1782 between the two boards in London concerned the protection given to contractors' men on timber vessels and in building yards; the dockyard officers' authority was not disputed. See Usher, pp. 93-8.

2. NMM, POR/D/21, 11-24 Ap, 14 Aug 1778; see also PRO, ADM 174/19, 18 Oct 1782.

Finally, small rewards for particularly good service could be gained, although, as these had to be granted by the Navy Board, which was always fearful of precedent, they tended to be few. Nevertheless, those men who helped to dowse the fire at Portsmouth in 1776 and distinguished themselves in other emergencies were granted small sums of money.[1] The dockyards did not offer great rewards to its workforce, but the security of employment was exceptional for the eighteenth century. Measures such as superannuation, sick pay and protections, although limited in extent and effectiveness, represented the efforts of the authorities to attract and maintain a stable labour force.

iv) Embezzlement.

The reputation of the yards for large-scale embezzlement has been long established. Ehrman, writing of the previous century,

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1. e.g. PRO, ADM 95/95, 9 Jan, 16 Dec 1776, 3 Feb 1780. The men who constructed the models of the dockyards in 1774, which are now in the National Maritime and Science Museums, were each paid five guineas "for their ingenuity" (PRO, ADM 95/95, 6, 20, 25 May 1774).

has, "no doubt that embezzlement of stores...was practised on a large scale"; and Albion reflects eighteenth-century opinion when he writes: "Among the officers at sea, a generally high code of honor prevailed, but ashore, corruption often permeated the entire service".[1] However, little attempt has been made to understand how the problems of discipline and security were faced, why the authorities had little success in stamping out embezzlement, and also why the workmen reacted in this way to their conditions of employment.

The custom of "chips" was the first major problem. An order issued by the Navy Board in 1783 ran thus:

> You are to suffer no person to pass out of the dock gates with great coats, large trousers or any other dress that can conceal stores of any kind...No trousers are to be used by the labourers employed in the storehouses and if anyone persists in such a custom he will be discharged the yard. 2

Among the recommendations which the Navy Board put forward was that the stopping of chips would prevent the secreting of other and more valuable stores out of the yards, and that as a consequence "discipline in the yards would be to a large measure

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1. Ehrman, p.92; Albion, p.47.

2. SO(b), 172, 4 Aug 1783.

restored".[1] Samuel Bentham pointed out that the only way to stop embezzlement was to stop chips.[2]

Other customs exacerbated the problems of security. At Plymouth the men were fed by their womenfolk in the yard, and Ourry reported that they were, "detected daily...in carrying out with chips in their baskets pieces of iron and nails. To prevent such evil practices as much as possible, I have ordered the Porter to suffer no chips to be carried out of the yard in baskets..." Ideally, the women should have been prevented from coming into the yard, but Ourry confessed that, "I don't know how to get at a mode of effecting it". When Lecras succeeded Ourry at Plymouth, he found that the "number of women and idle persons admitted into the yards from long practice is incredible". Custom also allowed the whole neighbourhood into the yards at the launching of a new ship, while on pay days, "persons of all descriptions, who on ~~the~~ pretence of coming to the pay office for wages, have it in their power to parade all over the yard, which is often attended with disturbances".[3]

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1. NMM, ADM BP/4, 1 Oct 1783.

2. Maria Bentham, Life of Sir Samuel Bentham, (London, 1862), p.143.

3. PRO, ADM 174/115, 31 Oct 1775; 174/116, 16 Mar 1777, 23 Feb 1779; 174/118, 14, 23 Jan 1783; 174/116, 21 Oct 1777; NMM, CHA/E/33, 20 Aug 1777; PRO, ADM 174/118, 25 May 1783.

There were also physical and administrative difficulties in making the yards secure against theft. Each yard had a long water front which was difficult to police, and the use of boats in taking away stores, especially those of any weight, was frequent and difficult to detect.[1] Much was taken from ships in dock, and there were always many types of stores lying around, which could prove a "temptation for idle people to purloin...'til they can be weighed, separated and charged".[2] Ships in Ordinary were often some miles away from the centre of the yards, and security was never strict, affording ample opportunity for those intent on mischief.[3] Perhaps the most insoluble problem was the nature of the work itself, for the gangs of shipwrights and labourers worked in no fixed place (except for those in the mast and boat houses), and this situation afforded every opportunity for picking up small stores. The stores most susceptible to embezzlement were coal, cordage - old and new - and various types of timber, but the particular trouble was metal in the form of nails and screws. With the widespread use of copper from 1779 came a rewarding source of remuneration; the price of manufactured metal, with its relatively higher cost before mass production, could be a very

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1. e.g. PRO, ADM 106/3405, 24 Jun 1783; 106/3320, 12 Sep 1781; ADM 174/115, 22 Ap 1774, 24 Oct 1775; 174/116, 30 Sep 1777; 174/118, 2 Mar 1783.

2. PRO, ADM 106/3319, 19 Dec 1778; see also NMM, POR/D/22, 17 Aug 1779; CHA/E/34, 3 Mar 1783; PRO, ADM 174/116, 5, 11 Mar 1779; 174/117, 9, 16 Jul 1782; 174/118, 27 Feb, 26 Mar 1783.

3. NMM, POR/F/16, 13 Feb 1776; POR/C/22, 15 Ap, 3 Jul 1775; POR/G/1, 12 Dec 1783; PRO, ADM 174/115, 1 Feb 1774; 174/116, 23 Aug 1776; 106/3320, 14 Dec 1782; 174/19, 5 May 1783.

useful supplement to the income of a low-paid worker. One price quoted at Portsmouth from a receiver was 1/3d for five pounds of used copper nails - more than a day's wages for a labourer.[1] Peter Butt proposed the use of,

> a chest, more if necessary, constructed to run upon wheels for its more easy conveyance from and to the cabins, where it should be deposited every night for ~~its~~ safety...for the reception of..several species of nails... in lieu of the present mode of every man breaking off almost when and for what he pleases. 2

It was undoubtedly the lower-paid, unskilled workers who were the chief offenders as petty pilferers. Apprentices were thought to be among the most frequent offenders, "owing to lack of attention from their masters". Lecras reported in 1783 that there were, "frequent depredations" done at the jetty heads and the docks, "which we apprehend is done by the idle and depraved amongst the youths". In the one case during the period in which an officer - the Master Smith at Woolwich - was dismissed, it was shown that he had been using his apprentices to take wood from the yard.[3] It does not appear, however, that many apprentices were dismissed; labourers seem to have been the chief offenders. Butt's scheme of the moveable chest was aimed at, "the gleaning of the labourers, who, like most others, avail themselves of every opportunity to

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1. NMM, POR/D/23, 21 Oct 1783.
2. PRO, ADM 106/3404, 28 Oct 1778.
3. PRO, ADM 106/3006, 10 Aug 1784; ADM 174/118, 27 Feb 1783; NMM, ADM A/2737, 18, 27 Mar 1779.

secret whatever they find scattered about the yard".[1] Of the 362 yard workers dismissed for all misdemeanours in 1784, 135 were labourers and 56 were rigger's labourers, which represents 8% and 21% respectively of their number at the beginning of the year; only 30 out of a total of 3000 shipwrights were discharged for these reasons.[2] It is difficult to know exactly what to infer from these figures; to say that shipwrights were comparatively blameless would no doubt be wide of the mark. The labourers were at a disadvantage in that they were not allowed chips, and were therefore more easily detected, but it can be reasonably surmised that the shipwrights had less motive for embezzling stores, and the comparative security of their employment meant that they had a great deal more to lose.

While the petty pilferer often acted on impulse, the planned theft bought greater rewards. Particular offenders in this category were the men from the transports bringing contractors' stores to the yards, for they were given ample opportunity to get to the centre of a yard. On one occasion over fifty pounds worth of the King's cordage was found on a Sunderland coal brig at Portsmouth.[3] Often the stores which the

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1. PRO, ADM 106/3404, 28 Oct 1778.
2. PRO, ADM 106/3006, Dismissals Book of Artificers.
3. NMM, POR/D/23, 27 Sep 1782.

transport was delivering never reached the storehouses intact, and orders went out during the war that the master and crew were to pay for any missing stores, although, as the Portsmouth Storekeeper pointed out, it was difficult to tell who was responsible for a theft when the transports were unloaded by gangs of labourers.[1]

The example of Sam Wyatt showed what could be achieved by persistent villainy. In 1774 he was caught stealing ash rafters from the deal yard at Deptford, where he worked as a shipwright. In spite of strong evidence against him, he was acquitted at Maidstone Assizes, much to the disgust of the Navy Board. He then managed to get into Woolwich yard (having unsuccessfully petitioned to return into Deptford), and he is next heard of in an anonymous complaint sent to the Admiralty in early 1777.[2] By bribing the call clerk, he evidently had acquired an original if somewhat macabre hold over his fellow shipwrights. He was, according to the letter,

> making such property in the undertaking business in charging such excess rate that we are not able to stand against it... That if we poor do not employ him in the undertaking...he tells us he will get us discharged out of the yard..(and) if that any of our wives or family dies and we poor men let Mr. Wyatt have it to do he will give us five or six days call at a time for which, Gentlemen, it is very underminding work. 3

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1. NMM, POR/D/22, 11 Jun, 21 Jul 1780; also SO(a), 633, 8 May 1773.
2. PRO, ADM/106 3385, 2, 6 Dec 1774; 106/2592, 18 Jan 1775.
3. NMM, ADM A/2713, 14 Mar 1777 (enclosure).

Not only this, but the elm for Wyatt's coffins came out of Woolwich yard. The letter appeared to have some effect, for he was discharged three months later.[1]

The offenders who gave the yard authorities the most trouble were, however, the receivers of stolen goods. Some of this activity appears to have been on a small scale. Ourry received information (which he ignored) of Mrs. Southwell at Plymouth, who bought old nails, "at a farthing per pound picked up by girls from the dockyard rubbish, paid a man a farthing a pound for straightening them and ~~sells~~ sold them for 1½d at her shop". The Navy Board was convinced that the receiving trade went hand in hand with the keeping of public houses, and ordered that workmen who kept them should be discharged.[2] However, there were receivers who operated on a very large scale, with a regular organisation and well-organised outlets to the London market.

Edward Brine of Portsmouth was evidently such a man. As a result of information, Hood searched Brine's house at the owner's request, found nothing, and confidently reported to the Board that the information was "malicious". However, the

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1. PRO, ADM 42/1924, 20 Jun 1777.

2. PRO, ADM 174/116, 18 Jun, 26 July 1779; NMM, ADM A/2736, 8 Feb 1779; ADM B/198, 9 Feb 1779.

following March a deposition on oath from one of Brine's servants, Robert Martin, "of an astonishing and alarming nature", proved to be correct, and a quantity of copper was found at Brine's house. Thomas Binstead, the Deputy Admiralty Solicitor at Portsmouth, managed to get an indictment at the Winchester Assizes, and was convinced that Brine was, "by far the most capital receiver in this country having sent melted down copper in the course of a few months to the London markets to the value of near £1400, besides what he used himself".[1]

The receivers were well known to the yard officers. The Master Shipwright at Deptford reported to the Board that, "the port is situated with receiving houses on every side". At Portsmouth they were usually at Gosport across the harbour; on one occasion, for instance, Thomas Hobbes, "a publican and a noted receiver" was convicted.[2] The difficulty was to catch the receivers with stolen goods in their possession. Although the Commissioner had considerable powers within the yard, and he was empowered to act as a Justice and therefore grant search warrants, this process was slow and cumbersome, and could not be attempted

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1. NMM, POR/F/17, 8 Jun 1779, 15 Mar 1780; POR/D/22, 3 Aug 1780; see also ADM BP/5, 15 Oct 1784; ADM A/2804, 26 Oct 1784.

2. PRO, ADM 106/3320, 14 Dec 1782; NMM, POR/F/16, 22 Jul 1776; also POR/F/15, 15 Oct 1774; POR/D/23, 21 Oct 1782.

unless the information could be verified in some way. In 1780, the Navy Board sent information to Ourry at Plymouth, which it had received concerning embezzled copper sheets, but since the information was anonymous it was decided not to grant a search warrant. For this a deposition on oath was needed, although Ourry observed to the Board, "I make no doubt that your informations ~~is correct~~ are true".[1]

The yard authorities were, however, unlikely to receive much information on oath, for it is clear that any individual who attempted to bring offenders to justice took on not only the offenders but also the community. Such was the feeling that considerable courage or malicious intent was needed to "lay an information". Robert Martin, who informed on Brine, seemed to have had a combination of the two. Life was not easy for him afterwards. He complained to Hood that, "in consequence of my exposing my late master...the trades people and merchants of this and adjacent places treat me with a great degree of coolness and indifference; I may with propriety term it contempt".[2] His application for employment in the yard could not be granted by Hood for fear of disturbance, "because "there are so many people

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1. PRO, ADM 174/117, 18 Jun 1780; see also NMM, POR/G/1, 28 Aug 1775; W. Nelson, The Office and Authority of a Justice of Peace (London, 1718), p. 535.

2. NMM, POR/G/1, 21 Mar 1780.

who have been checked in their notorious embezzlements". The Navy Board, on Hood's recommendation, paid Martin 2/6d a day subsistence money, after being told that he had been obliged to pawn his clothes.[1] Martin's troubles had, however, not ended here, for more than a year later the Admiralty received a letter from him; he was now in Winchester Gaol as a result of a counter charge of Brine's, who accused him of having planted the goods in Brine's house. "I presume he thought", wrote Martin, ~~"that~~ "there was but one chance - which was to blacken me as much as possible in order to weaken my evidence. In this (by deceptions, money flying, etc.) he has obtained his desire, to my misfortune". Martin, like Binstead, saw this as a test case, for if Brine was not convicted, embezzlement would, Martin pointed out, "undoubtedly go on with more spirit than ever, not apprehending any danger of being informed against as the consequence of informing has proved so fatal to me".[2] Three weeks after this letter Brine was found not guilty at Winchester Assizes, and he won his civil case against Martin, with damages of five hundred pounds.[3] In a similar case, Middleton's informer at Sheerness, John Cleversal, whose letters the Comptroller passed on to Shelburne, was dismissed

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1. NMM, POR/F/17, 27, 31 Mar 1780.

2. NMM, ADM A/2762, 19 Ap 1781 (enclosure).

3. PRO, ASS/22/3, ASS/23/8, Southampton, Lent Circuit, 1781. One junior officer at Deptford had to seek employment elsewhere because he informed the Navy Board of "irregularities"; see Yeoman Lott, Account of proposals made for the Benefit of His Majesty's Service (London, 1777), p.3.

in 1785 for what was considered a "totally malicious" representation.[1] In both cases, the evidence presented by the informers was too strong and detailed to be completely disbelieved. There was, however, little the authorities could do; it was the informers' word against many.

Even when information was used, the receivers were far too quick for the authorities. Proby reported that a rope had been found at a receiver's warehouse which had been made the same morning.[2] According to Martin, Brine received word that a search was to be made, and all the stolen goods were carefully hidden; while arrangements were made with the shipwrights to "keep their metal..for a few days 'til matters (were) a little quiet".[3] The next difficulty was to prove that the stores were in fact the King's, and also that they had not been legally bought at a dock-yard sale of old stores.[4] Cordage made for the King was to have a white thread, "laid the contrary way", and rope of less than three inches was to have twine instead of this thread. Canvas had a "blue streak", and all metal goods had the broad arrow

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1. NMM, CHA/X/2, 9, 11 Mar 1785; CHA/A/4, 10, 19 Mar 1785.

2. NMM, ADM BP/4, 5 Mar 1783.

3. NMM, ADM A/2762, 19 Ap 1781 (enclosure); also POR/F/15, 12 Dec 1774; POR/F/17, 11 Jun 1779; POR/D/23, 21 Oct 1782.

4. The Commission on Fees recommended that the dealers in old stores should be forced to take out an annual licence (PP-CF, p.315).

stamped onto them.[1] However, these marks could easily be removed; according to Martin, Brine employed a copper smith in pickling and cleaning copper sheets, two blacksmiths in beating out the broad arrow mark from bolts and the yard founder for filing the mark from brass pieces.[2]

There were also difficulties in securing convictions against petty embezzlers, for more than circumstantial evidence was required. Cases often had to be abandoned before proceedings were started because of insufficient evidence; only when an offender was found with the stores upon his person was a prosecution initiated. In spite of highly incriminating evidence, Wyatt was acquitted on these grounds in 1775.[3] In 1778 Binstead presented his expenses for the previous five years; there were five cases when the offender was discharged because there was no mark, eight of detection but insufficient evidence, seven of unsuccessfully searching a receiver's house and seven when information proved false. There was only one successful conviction.[4] In some cases it was not thought worth the time and expense of the courts, for often officers had to spend valuable

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1. 9 and 10 Will c.41; see also PRO, ADM 174/117, 18 Jun 1780; 174/19, 16 May 1782.
2. NMM, ADM A/2762, 19 Ap 1781 (enclosure). See also PRO, ADM 174/117, 9, 16 Jul 1782; 174/118, 26 Mar 1783; NMM, ADM BP/4, 31 Mar 1783.
3. PRO, ADM 106/3385, 6 Dec 1774; also POR/F/15, 14 Feb, 26 Jul 1774.
4. NMM, POR/D/21, 16 May 1778.

time away from the yards to appear as witnesses.[1] From 1769 any case of embezzlement could be prosecuted at the discretion of the Commissioner, but in October 1783 the Navy Board ordered that, in cases of small embezzlements, the offender should be discharged the yard and fined three times the value of the article.[2] This was no more than recognising an already existing situation; in order to save money and time, the Board hoped that the post-war employment situation would act as a deterrent rather than the threat of proceedings at law. Neither was very effective.

Even when a conviction was secured, the law was, by the standards of the day, comparatively lenient. Smaller offences were treated as petty larceny; for instance, a shipwright found stealing iron bolts at Portsmouth, and found guilty at the Borough sessions, was "ordered to be publicly whipt at the dock gates".[3] Under statute law the penalty for <u>making</u> stores with the King's mark, without being a contractor, was a fine of two hundred pounds, and imprisonment until the fine was paid.[4] This provided a loop-hole, which was exploited in 1775 by one Armado Limbery at Maidstone Assizes. He was found with "new nails, ropes and boat

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1. e.g. NMM, CHA/M/3, 23 Nov 1768.

2. 9 Geo III, c.30; SO(b), 221, 24 Oct 1783. See also PRO, IND 9315, 6 Mar 1729.

3. NMM, POR/D/23, 7 Ap 1783; also PRO, ADM 174/116, 24 Mar 1778.

4. 9 and 10 Will c.41.

sails", and was convicted of being in possession of naval stores, "not being a contractor", but he was found not guilty of unlawfully concealing them. Although the prosecution attempted to prove a felonious offence, he was only found guilty of misdemeanour, fined forty pounds and imprisoned until the fine was paid.[1] Juries were unwilling to see these crimes, unlike the stealing of personal property, as a felony.[2]

Im the face of these difficulties, more effort could have been made to tighten and enforce the regulations. Much depended upon the Commissioner, who had a special responsibility for the ships in Ordinary. Gambier made an effort at Portsmouth, but with the outbreak of hostilities other claims upon his time prevented an effective overseeing of security.[3] The officers, who had to take turns as officer of the night watch, were over-worked, and were slack in their performance of this duty. Proby found that the Clerk of the Survey at Chatham, who was continually ill, had been charged with the watch, and he reprimanded the officers because no one had taken his place. Nearly two years

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1. PRO, ADM 106/2592, 10, 15, 17 Mar 1775; ASS31/11, 35/215, Kent Lent Assizes, 1775; see also NMM, POR/F/15, 15 Oct 1774; PRO, ASS 21/7, Western Circuit Minute Books 1775.

2. There was an apparent contradiction on this point, for the right of search (for dockyard stores), established by 19 Car 2. c.12, implied a felony.

3. See the careful, formalised letters sent by Gambier to the yard officers on his frequent absences from the yard which transferred responsibility and enjoined care. This custom was initiated by Hughes by an order of 26 Mar 1757 (NMM, POR/C/22, 1775-77).

later he had to make exactly the same complaint.[1]

The second problem was the inadequacy of the people employed to watch the yard. It was not difficult to induce a warder or watchman to turn the other way when a theft was to be committed.[2] The job of warder could also be unpleasant; some courage was needed to stop a section of a crowd of several hundred workmen who left the yard on the ringing of the bell; ill-feeling could very easily break out.[3] Gambier had to warn the warders to "behave with civility and good language" after an incident involving blows.[4] There were more subtle methods of rendering warders at the gate ineffective; Lecras discovered that one warder had to go to the Exeter Quarter Sessions on a warrant served by a Justice named Mitchell. The warder had tried to stop three women who wanted to come into the yard, and they had, "behaved so outrageously that he was obliged to give one of them a shove with a broom by which she fell down"; and, he reported to the Navy Board, "I understand (that) Mr. Mitchell has too frequently countenanced the practice of receiving such informations so that the men are afraid to do their duty".[5]

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1. NMM, CHA/E/33, 11 Feb 1777, 4 Nov 1778.

2. e.g. PRO, ADM 106/3319, 29 Mar 1781; also ADM 174/115, 24 Oct 1775; NMM, POR/F/15, 27 Mar 1775.

3. e.g. PRO, ADM 174/118, 5 Jan 1783.

4. NMM, POR/C/22, ~~11~~ 5 Jul 1774: see also PRO, ADM 174/118, 14 Jan 1782.

5. PRO, ADM 174/118, 14 Jan 1783.

Lecras attempted to improve the effectiveness of the watchmen by obtaining Navy Board approval for taking on some more men, including four who were to roam the yard picking up stragglers.[1] There were continuing complaints throughout 1779 and 1780 of insufficient numbers of watchmen, and the Board approved increases at every yard.[2] The main difficulty, however, was to improve their quality. Early in the war, Ourry complained that many were old and incapable, and that it was customary to take them from the common labourers, and that "a more respectable person" would be desirable. He attempted to get the quartermen to perform the duty, but they refused, and he had to be content with shipwrights. An attempt was made to improve conditions in 1779 by increasing the pay of the warders at the gate from 1/6d to two shillings a day, but it had little effect. When Lecras came to Plymouth he still found labourers at the gate, many of them, "from whose ages cannot possibly go through the duties required.[3] The watchmen exasperated Hood; he ~~wrote, "I wish...they would relieve each~~ wished, "that the sentries may be relieved other in a military way, instead of...being detached from the main guard and returning to it alone in an irregular straggling manner".[4]

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1. SO(b), 12, 17 Jan 1783.

2. SO(a), 818, 27 Feb; 896, 13 Sep; 904, 30 Sep; 911, 26 Oct 1779; 1001, 6 Jul 1780.

3. PRO, ADM 174/116, 17 Dec 1776; 174/17, 5 Jan 1777; SO(a), 849, 27 May 1779; ADM 174/118, 23 May 1783.

4. NMM, POR/D/21, 25 Feb 1779.

The final shortcoming was the fault of the central administration. It was only too easy for a workman who had been dismissed from one yard to make his way to one of the other five and enter again; the Navy Board was aware of this frequently happening. Gambier informed the Board that he had discharged several smiths for insulting the Master Smith; "several of the smiths", he reported, "having on late occasions, told the Master that they did not regard being discharged, as they could go and enter at Chatham".[1] The Clerk of the Cheque of each yard was to inform his counterparts at the other yards of any dismissals, as well as the Navy Board, but it was a system which did not stand the strain of the extra work caused by the war, and these notifications fell away to virtually nothing. This is hardly surprising, because there was a high turnover, particularly of unskilled labour, and accurate accounting was extremely difficult. There were even cases of workmen re-entering the same yard, having waited a few months for their record to be forgotten or lost.[2] Middleton tackled this problem after the war; each yard was to compile an alphabetical index of each man discharged, with the reason, and returns were to be made to centralise the information.[3]

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1. NMM, POR/F/16, 1 Jun 1777.

2. NMM, POR/C/21-2. Lists of entries and discharges, e.g., 26 Feb 1774, 29 Sep 1774.

3. SO(b), 133, 24 Jun 1783.

Embezzlement of the King's stores was never less than a habit, especially among the less well-paid of the yard workmen. Apart from an analysis of Middleton's central record of the 1780's, which, since it records only those misdemeanours which were discovered, reflects only the surface of these activities, it is difficult to gauge the total loss to the navy. In 1782 the Clerk of the Cheque at Portsmouth thought it worthy of remark to the Navy Board that seven men were dismissed in one day, and Gambier was astonished at the extent of the problem; "it increases every day to an enormous degree".[1] Ourry remarked that it was "so frequent that we might fill Exeter Gaol".[2] These were the judgements of men who were used to the simple relationship between authority and subservience in a warship. While it was part of the general weakness of the civil administration, it is difficult to say whether it was financially as damaging as, say, the inaccurate accounting of stores, the loss of money to contractors or inaccurate estimates. Millions were written off to the navy during the American war; a few thousand a year in lost stores perhaps did not make all that difference. What was more damaging was the loss of timber or stores that could not be quickly replaced, the loss of the time of the workmen who directed their energies to outwitting the authorities or the engaging of the Commissioner's attention. In short, it was the efficiency of the yard which suffered most from embezzlement.

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1. NMM, POR/D/23, 3 Jul 1782; POR/F/16, 16 Jul 1776.
2. PRO, ADM 174/116, 16 Mar 1777.

v) Morale and Discipline.

Although the navy depended upon the yard workmen as much as the seamen for the effectiveness of the fleet, neither the artificers nor the labourers were subject to the harsh naval discipline of the time; a more subtle relationship was required to bring this labour force into efficient use. By the time of the American war, there had been a long tradition of friction in the yards, and their reputation for trouble and corruption gave rise to much concern. In 1781 Middleton wrote to Sandwich complaining that, "we dare not contest a single point of duty with either shipwrights, caulkers or ropemakers at this time", while in the same year Commodore Stewart commented:"the artificers ...are so sensible of their own consequence at this time that it with the utmost difficulty they are kept in any kind of order".[1]

The incidence of disturbances and indiscipline during the century rose very sharply during wartime. In the 1739-45 war, there was a rash of strikes in the first year, and they continued sporadically thereafter.[2] In the Seven Years war there were riots in 1756, 1757 and 1759.[3] Hostilities had started by the time of the task strike of 1775. The reason for

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1. BL, II, 29, Feb 1781 (?); SaP, IV, 409, 29 Sep 1781, to Sandwich.

2. See Baugh, pp.323-332; also Ranft, pp.281-291.

3. R. Middleton, pp.140-1; Williams, p.395.

this incidence lay partly in the greater problem of controlling larger numbers of men by officers who were under heavy pressure during hostilities, but more directly it was a simple case of supply and demand; only during wartime were the workmen in a position to question the authority of the Navy and Admiralty Boards. Faced with a recalcitrant labour force in peacetime, the authorities were under no haste or compulsion to listen to demands. During the American war there was a shortage of skilled labour, particularly of shipwrights; it was no coincidence that the strike of 1775 came just at the time when the yards were trying to increase their labour force. On the signing of the peace, the situation changed, for although there was no "General Reduction" of the labour force as after previous wars, the initiative passed immediately to the Navy Board. The change of tone in its dealings is clear. In February 1783 the Board reacted to a petition for better allowances from the riggers at Deptford by ordering the discharge of "those who were not content". A similar petition from Plymouth was met by a blunt refusal; the Commissioners added: "nor is it (their) wish to confine those to the yard which are dissatisfied with their... allowances conditions" - a remark which would have been foolhardy at the height of the war.[1]

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1. SO(b), 26, 3 Feb 1783; PRO, ADM 174/117, 14 May 1782.

It was only in the years after the war that regular information on dismissals came to the Navy Board, in spite of an order of 1719 that the Board was to be kept fully informed.[1] Some incomplete information in the Portsmouth Commissioner's papers of the early war period still exists. The number of discharges was comparatively small; the most frequent reason was "a request to leave", and the number discharged for misdemeanours was very small.[2] The alphabetical lists produced after the war through Middleton's efforts show a marked change of pattern. During 1783 and 1784 there was a large increase of dismissals, although the figures declined in subsequent years by at least half. In 1784, the first complete year, 610 workmen and seamen of the ordinary were discharged, of which 416 were yard workers. Of the total figure, 103 requested their discharge, while the rest were dismissed for misdemeanours of one sort or another: 218 for embezzlement (proven, suspected or attempted), 166 for neglect of duty, 63 for absenting themselves without leave, 28 for various degrees of insubordination or drunkenness and 32 for offences which are difficult to categorise.[3]

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1. PRO, IND 9315, 8 Dec 1719.

2. NMM, POR/C/21-2, 1766-1780.

3. PRO, ADM 106/3006, Dismissals Book of Artificers. Unfortunately, these figures slightly underestimate the total because this alphabetical compilation has the letters "F" and "Y" missing.

There is no evidence to suggest that this large number of dismissals was the result of conscious Navy Board policy to reduce the workforce; rather, it reflects the increased willingness of the officers to punish by discharging the men. In wartime, when there were other jobs to be had without much effort, the threat of dismissal was not much of a deterrent, although, as the figures suggest, the threat of unemployment alone could not break the habit of embezzlement and indiscipline. It can be reasonably assumed that the advent of peace increased the authority of the officers with the men. It bolstered the fragile relationship of the quartermen and their gangs, for their effectiveness was based on little more than personal authority. Although they would have the backing of the yard officers, it was the sort of discipline that was difficult to enforce. A small but steady amount of men were discharged for insubordination, but the evidence is scarce and incidental because these matters were settled by the Commissioner and the officers without the help of the Board.[1]

The exception to this rule was the anonymous letters sent to the Board, a practice which the Commissioners in London encouraged. The effects of this were almost wholly injurious,

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1. e.g. NMM, POR/F/16, 8 Oct 1775; also POR/C/22, 15 Aug 1775.

because nothing undermined the morale of those who commanded the workmen more effectively than these letters. A lack of understanding characterised the Board's dealings with junior officers; it was, for instance, aware that the quartermen were not as effective as they might have been, being, "frequently absent from their gangs and connive at the idleness of the men". The officers were therefore ordered to threaten them with discharge, which, according to the Board, "will have a better effect in promoting diligence amongst them than any other we can point out".[1] This sort of attitude, together with the reliance on anonymous letters, tended to neutralise the Board's influence. The letters which reached the Board concerned not only the quartermen, but the principal officers; in most cases they were found by the Commissioner's investigation to be malicious. In 1780 the Master Smith at Portsmouth was accused by one of the men under him of embezzling the stores under his care, but the investigation by Hood found that the accusation arose "from pique and resentment", and that the informer himself had been caught the previous week adding stolen bolts to his day's work to raise his earnings.[2] Ourry warned the Board on a later occasion that

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1. PRO, ADM 174/18, 3 Nov 1779.

2. NMM, POR/F/17, 26 Jul 1780; See also PRO, ADM 174/117, 11 Sep 1781; John Cleversal's letters to Middleton, ShP, 151, nos. 56-7, and to Stephens, NMM, CHA/X/2, 9 Mar 1785.

a too-ready reception of anonymous information was dangerous:

> Permit me to say that if the workmen of this yard find that anonymous letters are paid attention to it will be impossible to carry on (the) service. It is come to such a head at present that if an officer speaks smartly to a man he is immediately threatened to be wrote against. 1

He requested that in future all unsigned letters should be ignored.

The shipwrights could act with imposing solidarity when aroused, and were particularly conscious of their status. "As to the right of any other artificers in the dockyards", wrote William Shrubsole, "which can pretend to be of that importance to the nation as the shipwright?...They set the great wheels of commerce and war in motion...without which the pulse of our civil policy would stand still".[2] This consciousness quickly transformed itself into action when their interests were seen to be threatened. At Plymouth, when the discontent over the introduction of task work spread there from the other yards in July 1775, handbills and advertisements appeared at the first sign of trouble. Shipwrights who defied the majority had their tools thrown into the dock and treenails thrown at them. Ourry himself had to avoid a rain of "stones, cabbage stumps, etc.", and he took a threat to tar and feather him seriously. He

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1. PRO, ADM 174/117, 23 Aug 1782.

2. William Shrubsole, A Plea, p.15. Shrubsole was a junior shipwright officer at Sheerness and an articulate evangelical minister; he was "accounted a phoenomenom, there never having been, I believe, a preaching Master Mast Maker before". When two deputies from each yard went to London in 1769 to petition for a wage increase, he was elected their chairman (Shrubsole, Memoirs, xl,xliii,xliv).

described an incident when some newly-entered men were "horsed", a traditional way of ejecting unsuitably qualified men. "~~The~~ A mob had collected just outside the gates and seized two of the newly-entered shipwrights, put them on poles "as the men came out of the gate" and were ~~carried~~ carrying them to a field they called the Field of Liberty". Eventually, with the help of the officers, he managed to disperse the crowd, making himself heard above "the constant noise of liberty". Later he reported that they had avoided riots, and that he felt more confident, for the strikers were, "now so cautious to change their committee men every two days to prevent the ringleaders being discovered".[1] This effective solidarity, which forced Sandwich to drop his plans for task work, did not die away with the end of the strike. Further attempts to introduce task work at Plymouth throughout the war failed, and those shipwrights who had been awarded servants for working in the new way complained that their lives were in danger, and they were forced to transfer to another yard. When they returned at the end of the war, their lives were again made so unbearable that they were unable to stay.[2]

The shipwrights also showed their strength over minor differences. At Sheerness at the time of the Falklands Islands

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1. PRO, ADM 174/115, 18, 28 July 1775.

2. PRO, ADM 174/117, 21 Ap 1780; 174/19, 5 Aug, 3 Oct 1782; see also NMM, POR/F/15, 23 Jul 1775.

crisis, the shipwrights "gave three huzzas and refused ~~to go~~ going to their duty", because the day before some artificers were mulcted (fined) for "quitting their work and purchasing mackeral at the pierhead".[1] In July 1781, there was a stoppage at Plymouth over the dismissal of a shipwright for "not sawing a rider correctly". "Handbills were about the town that night", reported Ourry, and the next day, "upwards of seven hundred had been called, but had not answered to their names...saying to the Master Shipwright and officers that they were aggrieved and that unless they had redress they would not go to call". It transpired, when Ourry had persuaded the shipwrights to return to work, that the incident had been the culmination of longstanding bad feeling between the shipwright concerned and his quarterman. Ourry managed a happy settlement and established that in future, "if any dispute or animosity should arise amongst them, they would fix on two or three men to wait on me for redress, and never more... come in a body..."[2]

Traditional hostility with seamen often led to tension. The authorities tried as much as possible to keep them apart. Ourry warned the Navy Board that a project to bring piped water

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1. NMM, CHA/M/3, 24 Jun 1771.

2. PRO, ADM 174/117, 6 Jul 1781.

to the yard might, if the water was brought to the centre of the yard, "occasion frequent disputes between the seamen and the yard workmen", and he objected to a military guard house in the yard for fear of "constant broils".[1] An instance of the difficulties that could occur is provided when the shipwrights at Plymouth were repairing the Diomede (44) in Plymouth Sound in 1782. A petty dispute between a sea officer and a workman had been settled, but the next day, as Ourry reported, an apprentice, "by stepping backwards unfortunately stepped on a young gentleman's foot who immediately made the commanding officer acquainted therewith. The apprentice was taken to the gangway and threatened to be flogged". Whereupon, "the shipwrights immediately left their work, took the boy and brought him on shore, which alarmed me exceedingly". Ourry had to act very fast, together with the commanding officer of the port, to stop disaffection spreading through the yard, and each gang was read a memorandum which succeeded in mollifying them.[2]

The lack of discipline and efficiency can be said to have affected the output of the yards more that the dishonesty of the workforce; but the state of labour relations and the incidence of embezzlement were related. When Lecras went to

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1. PRO, ADM 174/116, 9 Feb 1779; 174/117, 16 Feb 1781.
2. PRO, ADM 174/117, 19 Ap 1782.

Plymouth in late 1782 to relieve Ourry, he found that embezzlement and indiscipline flourished together, for Ourry was by this time a sick man, and this was reflected by the state of the yard. The new Commissioner made a few examples by discharging some labourers and then delivering them to the press gang. He found great quantities of spun yarn and old rope on the riggers' labourers, who, after they had been relieved of their spoils, "had the assurance after they got out of the gate to heave a number of large stones and dirt at the men who had the watch".[1] The atmosphere in the yard at that time was affected by the prospect of peace, and it would be misleading to give the impression that this had always been the situation; several times during the war Ourry made a special point of informing the Navy Board of great exertions.[2] However, large-scale reforms in the payment system, a thorough revision of custom and something of an attitude of personal responsibility were all needed before the dockyards could in any way consistently attain, as Gambier had once occasion to remark, "that order, decency and subordination so essentially necessary in the King's dockyards".[3]

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1. PRO, ADM 174/118, 5, 14 Jan 1783.

2. e.g., PRO, ADM 174/117, 21 Ap 1780, 7 Sep 1781. The workmen were good in emergencies. One fire was put out, "tho' it was late and of a Sunday"; the men were "very active and ready to give assistance", and "dressed in their best clothes they all came to the yard much sooner than could be expected" (PRO, ADM 174/116, 8 Sep 1778).

3. NMM, POR/C/22, 5 Jul 1774.

Chapter Four. The Administration of Stores.

i) The Problem of Supply

Of all aspects of the civil administration at this time, the supply, distribution and delivery of naval stores to the six dockyards demanded the most planning and organisation. In no other aspect, however, was organisation more lacking, and it was to this that Middleton directed much of his attention after the war. The main commodities, such as timber, hemp, tar, pitch and canvas, and manufactured goods, such as pumps, blocks and compasses,were contracted for by the Navy Board. The Resident Commissioners also made local contracts under orders from the Board.[1] Important questions, however, were referred to the Admiralty for a decision, and it was always informed of contracts that had been made. Sandwich, however, left his Comptrollers with a free hand, and the disputes which marked former years over contracting matters did not, on the whole, occur.

While the Navy Board controlled the major contracts, many were made by the Resident Commissioners. These contracts

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1. For an outline of the system of contracting see Pool, especially pp. 87-119. Another source of supply was the cargoes of captured and, from 1779, neutral ships. Although a valuable addition to the stores, it added an administrative burden to the Navy Board and the yards disproportionate to the returns. Negotiations with the Court of Admiralty could be lengthy, while the delays experienced in dealings with the customs at a local level led to much irritation.

usually concerned bulk goods, such as bricks, lime, candles, which of necessity were purchased locally.[1] The usual method of purchase was through standing contracts, which enabled the yard Purveyor, under the orders of the Commissioner, to draw stores from the contractor without going through the motions of advertisment and tendering on every occasion. In general, however, these contracts were badly administered,[2] for they were customarily handed down from generation to generation without being put out to tender.[3] At Deptford in 1782 there were two contracts of over seventy years standing.[4] The Navy Board also discovered in late 1778 that many items were not purchased by contract when they could have been, but were bought by the yard Purveyor under the direction of the Commissioner on an ad hoc basis. This situation was regularised, for as the Board pointed out, "it was never intended the Purveyor should buy any other than trifling articles, or such as could not be provided by contract".[5]

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1. e.g. at Portsmouth there were 85 contractors delivering 31 items to the yard; 41 of these contracts had been made by the Resident Commissioner (NMM, POR/D/23, 18 Ap 1783; also PRO, ADM 106/3320, 15 Ap 1782). For overall details see PRO, ADM 49/34, Contracts in the Yards, 1762-1796.
2. See Pool, pp. 101-3, 120-121.
3. e.g. NMM, POR/F/16, 18 Nov 1775; PRO, ADM 174/116, 19 May 1776; 174/18, 10 Dec 1779.
4. PRO, ADM 106/3320, 15 Ap 1782.
5. PRO, ADM 174/17, 25 Nov 1778, 23 Jan 1779; also NMM, POR/D/21, 14 Dec 1778; POR/G/I, 24 Ap 1779. In the war the Purveyors were buying thousands of pounds worth of stores; see NMM, POR/C/22, 30 Dec 1774, ff.

Local contracts involved the Resident Commissioners in a good deal of time and trouble. Occasionally they had to adjudicate upon long cases of dubious practises and local jealousies. Ourry had particular problems over the bidding for the shingle ballast contract at Plymouth, and finally he left the Navy Board to sort out the confusion; "this has been so intricate a piece of business that I wish with the officers for you to determine it".[1] Local labour problems could also be troublesome,[2] but the most frequent difficulty involved the small merchant who found himself in financial trouble over fixed-price contracts. This was more likely to happen in those places away from the London market where the war had the greatest effect upon scarcity and the price of materials.[3] Some of these cases dragged on for years.[4]

Apart from the day-to-day worries of administering contracts, the Navy Board had the greater responsibility of planning an adequate supply of stores to the six yards. The 1662 Instructions laid down that the Board was to, "proportion a

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1. PRO, ADM 174/117, 4 Oct 1782; for this case see also 174/117, 19 Jul, 10 Sep 1782; 174/19, 26 Nov, 20 Dec 1782; 174/118, 12 Jan, 16 Feb, 14 Mar 1783.
2. e.g. NMM, POR/D/22, 12 Ap 1780; POR/D/23, 8 Ap 1782.
3. e.g. PRO, ADM 174/18, 20 Oct 1779; 174/117, 17 Nov 1780; NMM, POR/F/17, 4 May, 21 Jun 1780.
4. e.g. PRO, ADM 174/115, 31 Oct 1775; 174/116, 2 Jan 1778; 174/19, 10 Jun 1782; 174/117, 3 Sep 1780; NMM, POR/F/17, 4 Ap, 21 Oct, 7 Nov 1778; POR/D/23, 19 Ap, 17 Jun 1782.

certain quantity of masts, yards, sails, anchors, cables, timber, planks, rosin, tar, deals etc.. remaining in store as a sufficient magazine for each kind for the supply for any sudden service".[1] The first task of the Board was thus to estimate the needs of the yards as a whole. Planning for this, however, started in a vacuum. There was very little idea of the consumption of each yard each year, and still less was there much notion of the amount of each commodity which should be kept in store. This was very much up to the individual Storekeeper's discretion, as was the method by which he calculated it. The principle laid down by the 1662 Instructions was that the amount was to be governed by the number of ships which the yard serviced; the Board was to, "distribute with discretion stores to the several yards...according to the number of ships riding in the harbour or repairing, or in likelihood of repair in each dock or yard so that abundance may not glut the stores and waste the King's treasure".[2] On the other hand, an order of 1764 noted that the amount of canvas in store should be decided by the amount needed to, "keep the present number of men working in the yards for two and a half years at a single day's work".[3]

The provision of the most important commodity used by

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1. 1717 Oeconomy, p.22.
2. ibid, p.25.
3. PRO, IND 9315, 2 Jul 1764.

the yards - timber - illustrated the weakness in planning. Early in his administration Sandwich realised the vital relationship between more durable ships, adequate seasoning and a good supply of timber.[1] Through personal supervision at the pre-war visitations, he saw that timber stocks were built up and stored efficiently.

The exhaustion of the English woodlands, the neglect of the Royal Forests by the Treasury and the supposed scarcity produced by a monopoly of large timber merchants were overcome by purchasing large quantities of oak from abroad.[2] The East India Company was forced to cut its consumption of oak. Contract conditions were made easier, especially in the subsidies introduced for distant timber, and each contractor was to deliver a proportion of his timber already cut, or "sided and converted". The First Lord aimed to build up the stock of timber which would equal three years' consumption so that timber would have enough time to season sufficiently. His self-congratulation in his visitation notes of 1775 and his emphasis of the sufficiency of timber stocks in Parliament throughout his administration have been accepted uncritically.[3] In fact, there was never a complete three-year supply of timber in the yards between 1771 and 1783.

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1. PRO, ADM 7/659, fo. 112; 7/660, fos. 13, 85-7.

2. See Parliamentary Papers, Report from the Committee appointed to consider how His Majesty's Navy may be better supplied with Timber, III, 1771, pp. 15-17; also Roger Fisher, Heart of Oak, the British Bulwark (London, 1763); PRO, ADM 49/36, 7 Sep 1771, Roger Fisher to the Navy Board. Sandwich's suspicions about the timber merchants' 'ring' appear to be unfounded (see Williams, pp. 288-291).

3. PRO, ADM 7/662, fos. 69-70, 75; G, V, 343-4, Jan 1782. See Mackesy, p.168; Albion, pp. 58, 134-5; Williams, p.299; Haas, Early Visitations, pp.209-10.

This was due to the weaknesses of the administrative methods as a whole, for Sandwich's individual effort in building up the store of timber should not be belittled. In 1771 the amount of timber in store was completely inadequate; at Chatham, for instance, there was not enough to build a third-rate ship.[1] However, by 1773 the First Lord had doubled the amount of the previous year, and there were further gains from that date.[2] In addition to this, the stock was better organised and properly housed in seasoning sheds. Sandwich's enthusiasm and presence at the Visitations can be seen as the greatest factor in this success; "the plan probably would have miscarried had he not personally seen to its execution".[3]

Nevertheless, the whole effort was based upon rough and inaccurate estimates which, whether or not the First Lord was aware of it, give the lie to his claim of building up the equivalent of three years' consumption of timber. The central point is that no-one appeared to be aware of the true consumption figures of the yards until after the war. The idea of having a three-year

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1. PRO, ADM 7/659, fos. 8,85; also 1771 Timber Report, p.30. Sandwich exaggerated the meagreness of the amount of stores that he inherited in 1771, but not by much; see SaP, IV, 283, 31 Dec 1781; also Appendix VIII.

2. PRO, ADM 7/660, fos. 13, 33, 49, 66, 76; 7/661, fos. 4, 15, 29, 45, 59, 67; 7/662, fos. 18, 19, 31, 42, 50.

3. Haas, Early Visitations, p. 209.

reserve of timber was not new,[1] and throughout the period the accepted figure for this was 66,000 loads of timber.[2] This figure had been calculated at the time of the Timber Report of 1771, and based upon consumption figures for the previous decade.[3] A rougher calculation was made by Sandwich in 1774:

> upon the best information I can get, it appears that 18,000 loads will answer (annually)..., supposing the whole to be sided. But as the intention is to have only a third... delivered in that state, the gross quantity wanted for the service of the year will be 22,000 loads. 4

However, 66,000 loads of timber was not enough for a three years' reserve.

The reason for the consistent underestimation of the consumption figure can be attributed to the administrative inaccuracy typical of the century. The estimate submitted by the Navy Board in the Timber Report of 1771 stated that the 66,000 loads was for "Oak timber and knees" only; the annual average consumption for the years 1763-69 came to 22,283 loads of this timber. What was disregarded was the fact that the average consumption for all

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1. The suggestion that Sandwich was responsible for this as an innovation is false. See 1771 Timber Report, p.16; R. Middleton, "The Administration of Pitt and Newcastle", pp.148-9.
2. A "load" weighed "somewhat over a ton" (Albion, p.103).
3. See Appendices VIII and IX; also 1771 Timber Report, p.29; PRO, ADM 49/124; NMM, ADM B/188, 19 Oct 1773.
4. PRO, ADM 7/661, fo.30. The building of a 74 gun ship used 3,530 loads of oak of various kinds; see Sir Westcott Abell, The Shipwright's Trade, (Cambridge, 1948), p.96.

timber - including ash, beech, elm and fir - for the same period amounted to 31,070 loads annually.[1] However, in the succeeding years, no-one really managed to make this distinction. All figures showing oak remaining in store included "thickstuff and plank" in addition to "oak timber and knees"; therefore an additional 3,793 loads annual consumption should have been allowed for - this being the average consumption of oak"thickstuff and plank" between 1763 and 1769. Thus the evidence of the Timber Report was misinterpreted; there was not a three years' reserve of oak.[2]

Even in the years when stocks of timber were at their greatest, in 1776, 1778 and 1779, there was still never a three-year reserve. The total figure for 1779, the highest, was reported by the Navy Board to have been 72, 154 loads. This figure included 5,636 loads of plank and 4,639 loads of thickstuff, of which, of course, there is no mention in the 1771 estimate for the 66,000 loads of "oak timber and knees". By the same calculation the other two peak years fall short.[3]

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1. 1771 Timber Report, pp. 29, 31.

2. Thickstuff was oak plank between 10 and 4 inches thick, and knees were crooked pieces peculiarly suited to ship construction. For a full technical explanation see Albion, pp. 5 - 26.

3. See Appendices VIII and X.

The administration did not recognise that the figure of 66,000 loads was inadequate, for the consumption figures that were available were confusing and contradictory. It took Middleton and the time which peace afforded him to work out the full implications of the statistics presented in the 1771 Timber Report. By taking, "a medium of the consumption in the years 1765, 1766 and 1767", he ordered specific establishments of each type of oak to each yard. Straight and compass oak timber was to amount to 66,000 loads; a further 8,7000 loads of thickstuff and 9,400 of plank were to be distributed. The total of oak timber alone was to amount to 84,100 loads.[1] At last a realistic three-year reserve had been calculated.

There were a number of reasons why these discrepancies remained unresolved until this time. The administrative machinery was not designed to connect sets of related figures which did not come from the same source. Accounting methods were very crude; for instance, Sandwich's figures which he gives in his visitation notes between 1772 and 1775 bear very little resemblance to the official Navy Board figures for the same years.[2] Detailed lists

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1. For full details see Appendix IX. The average of the annual consumption figures given by Williams (p.302) is 28,105 loads a year; see also NMM, ADM BP/6b, 13 Mar, 10 Ap 1786.

2. The total figures given to Sandwich at each yard were as follows: in 1772: 20,448 (Navy Board official figure 27,386); 1773: 41,567 (50,027); 1774: 57,688 (68,803); 1775: 51,772 (68,500). These figures are from PRO, ADM 7/659-662; NMM, ADM/B/189-90. In each case the Navy Board figures were for the end of the year, while Sandwich's were for June. Curiously he made no attempt to calculate the total in all six yards.

of timber in store were not apparently sent to the Admiralty until 1775.[1] It is perhaps therefore not surprising that Sandwich's understanding of the problem was limited. His notes on the visitations show little grasp of the problem of timber supply as a whole. In addition, the difficulty he had in grappling with the figures before his speech in defence of his administration suggests that his knowledge of the subject was little more than superficial.[2]

The inefficient method of estimating and supplying timber must anyway be laid at the door of the Navy Board. There was little idea that consumption might vary, let alone increase, with a larger fleet. Once the figure of 66,000 loads had been fixed, then the Board was quite happy to accept that as immutable precedent - even though, of course, it was based on a wrong conception of the estimate of 1771. The implications of this problem in the event were more serious in theory than practice, for vigorous administration by Palliser and Middleton kept supplies at a comfortable level. There was very probably some loss of time for the timber to season, but in any case effectiveness in this

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1. See NMM, ADM A/2699, 26 Jan 1776; ADM B/191, 1 Feb 1776.

2. In a draft memorandum at the end of 1781 Sandwich stated that 38,742 loads were enough for "about three years consumption". He was corrected once by Middleton and twice by Palliser. The various memoranda would appear to be written in this order: G,V, 343, undated, (by Sandwich); SaP,IV,309-10, undated, (by Palliser); SaP,IV, 278, 21 Jan 1782 (by Middleton); SaP,IV,283, undated, (by Sandwich); SaP,IV, 278-9, 22 Jan 1782 (by Palliser). The actual correction in Sandwich's hand can be seen in Add MSS 38344, fo.285, undated.

area depended more upon efficient handling in the yard. Besides, as a result of inefficient accounting within the yard, more timber was issued than was accounted for. Had there been three years' reserve "on paper", there certainly was not that amount actually in the yards.[1] Nevertheless, the effort which went into building up supplies before the war saw the navy through a war which made more demands on supplies than ever before. There were no serious overall deficiencies, although the administration was not equal to eliminating a regular occurrence of delays and local shortages.

ii) The Distribution of Stores to the Yards.

The second task of the Navy Board was that of ensuring that the stores were efficiently distributed to the six yards. In theory, the central part of the distribution procedure was a three-monthly estimate by the Surveyor; working from quarterly returns from the yards, he put before the whole Board the needs of each yard for the ensuing three months.[2] This was to be supplemented by "Occasional Demands" from the officers to cover any

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1. See below p. 250.

2. The foreign yards were supplied by the same system. See PP-CF, Fifth Report, p.192.

gaps left in the distribution. The great flaw in the procedure was that the returns were irregular and inaccurate, and what happened was that the demands from the officers became the centre of the system.

The officers made the demands for stores collectively. It was the responsibility of the Clerk of the Survey to gather the officers together for consultation so that their needs could be estimated, "so timely that the service be constantly supplied".[1] Guided by the technical officers, the Clerk of the Survey acted as a check on the Storekeeper. Thus the Master Attendant's "particular duty" was, with the Clerk of the Survey, "to give directions for making out rigging and block warrants...for the guidance of the Storekeeper in making out timely demands of such articles for carrying on the said works".[2] The principle of cross-checking had been laid down in the previous century. Demands for stores were to be made, "by a general consultation of the officers that it may be known what is proper in each other's department"; no persons "of less consideration (were) to be at those deliberations".[3]

It is, however, clear that these deliberations and demands were not effective. Demands flowed into the Navy Office at such a

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1. PP-CF, p.334.

2. PP-CF, pp.319, 449.

3. PRO, IND. 9315, 26 Jul 1662, 2 Dec 1724; also 1717 Oeconomy, pp. 118-9.

rate at the height of the war that Middleton attempted to bring some order to the system by issuing a list of stores which needed an "early demand". The fact that this list contained almost every item of importance indicates that delays were widespread. The order warned that "a want of foresight in demanding of stores... may be very prejudicial to the activity of the fleet".[1]

However, the officers' foresight was the only thing that kept the distribution system in operation; only their experience kept the yards ahead of a serious distribution crisis. The real weakness of the system was that there was little or no idea of the amount of stores which ought to have been kept in each yard. What happened was that the officers estimated their needs from the establishments of ships which the yard had to service, for the stores establishment of each class of ship was clearly defined. The constant pressure of the commanders for extra stores had forced the civil administration to lay this down precisely. In the yards, however, the Navy Board had, up to this time, largely failed to do this; the situation had thus become unnecessarily complicated, for the correct amount of stores in a yard at any one time was never known.[2] Only by stockpiling an adequate

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1. SO(a), 992, 21 Jun 1780.
2. An estimate of the amount of oak timber in each yard had been made in 1771, although it did not appear in the Timber Report of that year (see PRO, ADM 49/124; NMM ADM B/190, 21 Nov 1775); how little this was thought of, if it was ever known, through the 1770's, can be seen in Appendix X.

reserve in each yard well in advance could the "works" be supplied without delay.

Before this could be remedied, however, the administration of the yards as a whole had to be examined afresh, and Middleton was not able to do this until some time after the war. In the meantime, small improvements were made. During 1783 the Comptroller made a determined effort to cut down the amount and the irregularity of the demands. He differentiated between those which could be approved of automatically, and those which would need a Board decision.[1] He also tried to make all the demands arrive at the Navy Office on the same day.[2] However, because of the inefficiency of the yard officers, he experienced a great deal of difficulty in enforcing both these measures.[3]

An important part of the distribution process was the transfer of stores from yard to yard. Early in the century, the principle had been laid down that "no demands for stores of tradesmen that can be spared or supplied from other yards in time" were to be made.[4] There was a constant need for the Navy Board to adjust the amount of stores from yard to yard. Throughout the

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1. SO(b), 5, 8 Jan 1783.

2. SO(b), 153, 18 Jul 1783.

3. SO(b), 157, 23 Jul; 215, 16 Oct; 235, 27 Nov 1783; 266, 20 Jan 1784.

4. PRO, IND 9315, 4 Aug 1698, 18 Nov 1710.

period, the Storekeepers either could or would not co-operate. When stores were sent to other yards they were frequently in a bad and unsorted condition.[1] More often, surpluses were not reported to the Board. "We cannot help expressing our surprise at the quantity ...that has been suffered to accumulate at a very great expense without the least intimation", wrote the Board in a general order, "whereby the Crown must have suffered ~~a material~~ an enormous loss by it perishing or being ~~put~~ applied to inferior uses".[2] In 1784 Middleton tried to get these demands to be sent quarterly,[3] and some years later, when the system grew to better order, he managed to take the Board out of the procedure altogether; the officers were "in future to settle such... correspondence between yourselves...and apply to us only in cases of difficulty".[4]

The naval transports which distributed the stores were administered by the Navy Board. Although there were only five transports in peacetime,[5] their numbers were increased during the war. This resulted in their administration becoming sufficiently

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1. e.g. SO(a), 634, 25 May 1773; SO(b), 134, 25 Jun 1783.
2. SO(b), 348, 29 Nov 1784; also SO(a), 665, 22 Jul 1774.
3. SO(b), 147, 15 Jul 1783.
4. SO(b), 492, 7 May 1787.
5. See PRO, ADM 95/95, 23 Jun 1777.

complicated to induce Middleton to allot their management to the Extra Sea Commissioners. However "this,"caused so much jealousy in the Surveyors, to whose branch it was thought to belong on account of it carrying stores, that the Comptroller was obliged to take it under his direction"; however, he found that it was, "absolutely impossible to give it that attention, which it requires", so the task passed into the hands of his chief clerk, with, Middleton claimed, a consequent loss of money and efficiency.[1]

There is no doubt that brisker administration from London would have done much to speed the service, for orders from the Board were frequently late or unrealistic.[2] These small vessels averaged only about three or four round trips a year.[3] Space in their holds was wasted.[4] The masters and crews were difficult

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1. NMM, MS66/086, "Observations on the Navy Board". The task of the Extra Commissioners was "to arrange in the most frugal manner the transportation of stores from one yard to another, and to prevent as far as possible their being unnecessarily moved". They also examined masters' journals to see if loading and unloading had been delayed. See also SO(b), 350, 28 Dec 1784; PP-CF, Fifth Report,pp. 199-200.

2. e.g. NMM, POR/G/I, 11 Nov 1777; POR/F/16, 12 Nov 1777; POR/D/22, 8 Sep 1779.

3. e.g. PRO, ADM 36/10233 (Ser.I), Muster Book of the Plymouth Transport, 1 Jan 1775 - 31 Dec 1785; ADM 36/10249 (Ser.I), Muster Book of the Lyon Transport. Although these vessels did not always make the round trip from Deptford to Plymouth, 3 or 4 of these trips a year represents a fair average. Between the eastern yards stores were transported more efficiently because the smaller yard boats could be used for the relatively short journey; e.g. PRO, ADM 106/2592, 16, 18 May 1775; also SO(b), 464, 20 Nov 1786.

4. See SO(b), 405, 13 Sep 1785; 491, 24 Ap 1787.

to discipline, and the condition of the vessels left much to be desired, for they frequently needed the attention of the yards.[1] There was a tendency for the stores which they were transporting to become damaged, especially sails, which would become mildewed because of incorrect stowage.[2] Further, these ships had a particular reputation, even at that time, for embezzlement.[3] More and more responsibility devolved upon the Resident Commissioners, who, in addition to their other tasks, found that duties involving transports increased as the war went on. Problems arising out of late orders and disobedience, the identification of each transport as it arrived and the reporting of the fact to the Board, and the distribution of orders to the masters all came within the Commissioner's compass. Once there was even a mutiny to quell.[4]

Nevertheless, there was little improvement that could have been made in wartime, and, in any case, some of the causes for delay were outside the power of the Navy Board. The need

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1. e.g. NMM, POR/D/21, 25 Dec 1777; PRO, ADM 174/18, 13 Ap 1780; ADM 174/118, 18 Ap 1783. Masters of transports eventually had to qualify as pilots with Trinity House (NMM, CHA/S/1, 6 Ap 1782, 9 Sep 1784).

2. NMM, POR/F/17, 25 Sep 1779, 12 Ap 1780; PRO, ADM 174/117, 28 Oct 1781.

3. e.g. PRO, ADM 174/18, 17 Aug 1779; 174/117, 18 Dec 1781; 174/118, 5 Jan, 28 Mar 1783.

4. e.g. NMM, POR/D/21, 1 Feb 1779; PRO, ADM 174/116, 7 Sep 1779; 174/117, 31 Oct, 19 Nov 1779; NMM, POR/F/17, 8 Dec 1778, 7 Mar 1779; POR/F/16, 28 Aug, 19 Oct 1776. For the similar activities of the Agents for Transports, see Syrett, pp.41-44.

to convoy coastal vessels from early in the war caused heavy delay, which in turn was exacerbated by the division of responsibility for their organisation between the Admiralty and the Navy Board. The contract builders at Liverpool and Bristol were the most inconvenienced by the lateness of the stores being delivered to them from the yards,[1] and the West Country timber merchants who delivered their timber to Plymouth yard also suffered. After one delay which went on for months, one merchant wrote to the Board: "We are all determined to load no more after this voyage".[2] The dilatory handling of cargoes was another factor which made for delay, yet this was genuinely complicated by convoys, for all the ships would arrive at a port at once.[3] Some stiff demurrage fees had to be paid.[4] Such were the delays that the Board sent increasing amounts of urgent goods by land, since, "water carriage is become tedious and uncertain".[5]

As a result of these factors, there were local shortages

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1. e.g. NMM, POR/G/1, 25 Nov 1778; ADM B/200, 8, 11 Nov 1779; PRO, ADM 174/117, 27 Aug 1782; Add MSS 38344, fos. 314-318.
2. NMM, ADM B/199, 14 May 1779; also PRO, ADM 174/18, 12 Nov, 18 Dec 1779. Convoys improved from this date; e.g. NMM, ADM A/2760, 24 Feb 1781; A/2778, 30 Aug 1782.
3. e.g. NMM, POR/D/21, 21 Sep 1778; POR/D/23, 28 Nov 1782; PRO, ADM 174/116, 27 Sep 1778; 174/17, 16 Oct, 19 Dec 1778; 174/117, 1 Jul 1780; 106/3319, 29 Mar 1779.
4. e.g. PRO, ADM 174/19, 11 Mar 1783.
5. NMM, POR/D/23, 18 Feb 1782; e.g. in 1780 some paper for coppering was sent by "the Guildford Navigation" (POR/F/17, 14 Ap 1780), and bulky articles were sent to Plymouth by land (e.g. PRO, ADM 174/117, 5 May 1780).

of some significance. The most constant problem was the deficit of timber at the eastern yards, which stemmed partly from the need to supply the merchant yards of the River and of the Medway, and partly because the eastern yards were far less accessible than Portsmouth or Plymouth to the sources of English oak.[1] As a result the western yards were overstocked, for the naval transports came nowhere near to evening out the discrepancy.[2] Operations at the eastern yards were held up for want of timber on a number of occasions; for instance, the building of the Polyphemus (64) was delayed in 1775 for over three months for lack of timber to complete her frame; at the same time, Plymouth, the only yard which was able to supply the extra timber, reported a surplus of over five hundred loads.[3] Cables and cordage were also generally in short supply at Portsmouth, particularly after the ropehouse fire of late 1776.[4] "Much expense was incurred", Middleton wrote later, "by a multiplication of articles at some yards and by a scarcity at others".[5]

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1. See PRO, ADM 106/3222, Chatham Minutes 1785; 1771 Timber Report, p.16.
2. See Appendix X.
3. PRO, ADM 106/2592, 6, 15, 17 Mar, 28 Jun 1775. The Polyphemus was not completed until 1782.
4. e.g. NMM, POR/D/21, 17 Dec 1777, 29 Jun 1778; POR/F/17, 4 Ap 1780. There were also shortages of hammocks (PRO, ADM 174/116, 30 Jan 1778), and, at Portsmouth, of large anchors, throughout the war (NMM, POR/D/21, 9 Jan 1779, POR/D/23, 6 May 1782). There was also a shortage of iron ballast from 1780 (NMM, POR/D/22, 5 May, 23 Jun 1780) which had unfortunate effects; see below pp.357-8.
5. NMM, MS66/086, "Observations of the Navy Board".

An illustration of the weaknesses in the distribution of stores is provided by the sails at the western yards in the first years of the war. There were complaints of shortages from Portsmouth from as early as March 1777, and, although one contractor was engaged in July to assist the yard loft, the Navy Board ignored urgent demands from the officers throughout that year for sails to be supplied from the eastern yards.[1] Eventually, more contractors were taken on (with some difficulty) at the beginning of 1778, while sailmakers from the fleet were brought ashore to help the yard sailmakers.[2] Ourry at Plymouth, which was by now suffering from similar shortages, thought that the latter were a mixed blessing, for he proposed that contractors should be used, rather than, "be troubled with a set of irregular, disorderly men from the ships", as the Navy Board had ordered.[3] Even with this extra help, the immediate supply was subject to great delay, and the situation was not eased until 15th March when two transports arrived at Portsmouth from Deptford with cargoes of sails.[4] However, the supply immediately deteriorated because of the increase

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1. NMM, POR/D/20, 26 Mar, 3 May, 19 Jul 1777; POR/D/21, 24, 28 Dec 1777, 1 Jan 1778; PRO, ADM 174/116, 7 Oct 1777.

2. NMM, POR/G/1, 29 Dec 1777; POR/D/21, 1 Jan 1778. This had happened in the previous emergencies of 1755, 1757 and 1771. Local contractors were a vital source of sails at this time; e.g. in eight months of 1779 they supplied 919 sails to Portsmouth (NMM, POR/D/21).

3. PRO, ADM 174/116, 22 Feb 1778; also 174/17, 22 Feb 1779.

4. NMM, POR/D/21, 15 Mar 1778.

in demands caused by the return of cruising ships.[1] This shortage was quickly brought to the attention of the Admiralty by the commanders who were supervising the fitting out of their ships in the general mobilisation, and it was at this point that the Navy Board acted in accordance with custom by accusing the Portsmouth officers of negligence. Hood leapt to their defence; "a very great and becoming alacrity has been shown by the respective officers".[2] Nothing more was heard from the Board. Fortunately, from this point the situation was brought under control, and the delays in fitting out decreased.[3]

Sails were, however, an exceptional item, for there was at least an awareness of the number that were to be kept in store in each yard.[4] Middleton's plan for comprehensive establishments for all stores at each yard, which he put into effect between 1784 and 1786, represented a radical departure from the erratic and

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1. NMM, POR/D/21, 9 Ap 1778.

2. NMM, POR/F/17, 14 Ap 1778.

3. This was not entirely the end of the trouble. The next cargo from the east was of very poor quality, and was the cause of the first of several complaints from the Portsmouth officers (NMM, POR/D/21, 27 May 1778; also POR/D/23, 7 Mar 1782). Also, although immediate needs came to be satisfied, the level of reserves laid down by the Navy Board was never reached during the war. The peak was reached at Portsmouth in October 1779, but this level fell away again (see NMM, POR/D/21-2, especially 7 Mar 1779, 1, 24 Jul 1780; POR/F/17, 2 Nov 1778).

4. See PRO, ADM 174/18, 29 Aug 1780; also 174/19, 17 Ap 1782; 174/117, 17 May 1782.

piecemeal system that he found.[1] The only commodity for which a comprehensive and sound establishment had been set up (apart from sails) was the newly-introduced copper sheathing, and it is significant that the Navy Board was able to upbraid the officers less than a year later for ordering too many copper nails.[2] For the first time there was a system of accounting and estimating from London which attempted some degree of accuracy. Charles Derrick observed that this, "was truly an original and great plan, no idea of the kind having probably been ever entertained at any former period".[3]

iii) The Administration of Stores within the Yards.

The most complicated part of the administration of naval stores began once the materials had reached the yards. One of the most important tasks of the yard officers was the reception and

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1. SO(b), 340, 18 Oct; 348, 29 Nov; 349, 3 Dec; 351, 29 Dec 1784; 362, 29 Mar 1785; 439, 2 Aug 1786. A pre-requisite of these far-reaching orders was the reorganisation of the Standing Orders.

2. SO(a), 1003, 11 Jul 1780; 1072, 28 Ap 1781.

3. Charles Derrick, p.179.

inspection of contractors' goods, and the making and signing of the Navy Bill in payment for them. The Navy Board at this time was particularly concerned with this procedure, and tried to administer it closely by laying down precise standards.[1] There was to be no correspondence between the yard officers and the contractors; all business had to be done through the Board.[2] Permission for time extensions on delivery dates, orders for contractors to hasten their goods into store and orders concerning local contracts all had to come from London. As the war continued the number of enquiries increased to form a heavy burden on the Board.

Yet in spite of this attempt at tight control, the delivery of stores into the yards was subject to much abuse. The 1662 Instructions laid down that all the clerical officers were to attend deliveries, while the technical officers were also to be present when the stores were "proper to their element".[3] By now, however, the combination of the pressure of other work and of the huge quantity and variety of the stores coming into the yards meant

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1. e.g. SO(a), 767, 13 Nov 1778; 1044, 13 Dec 1780; 1091, 14 Sep 1781; PRO, ADM 174/18, 27 Oct 1779; NMM, CHA/E/33, 16 May 1778.

2. SO(b), 179, 14 Aug; 226, 17 Nov 1783. See Pool, pp. 33-7.

3. 1717 Oeconomy, pp. 76-7, 106-7, 126-7, 130; PRO, IND 9315, 29 Mar 1686, 13 May 1751. In 1782 the Clerk of the Ropeyard at Woolwich was ordered to inspect the hemp being received at the yard (SO(a), 1133, 25 Feb 1782).

that most of the business devolved upon the clerks from the different yard offices. The Board complained during the war that it was "still customary to have one or two clerks "without the attendance of ~~the~~ a principal officer" at the reception of stores,[1] while the Storekeeper at Portsmouth confessed to the Commission on Fees that he was "frequently under the necessity of employing a clerk to represent him".[2] The Commission recommended that the two technical officers and the Clerk of the Survey should inspect goods for quality, and that only one clerk officer need attend the inspection for quantity. This was eventually adopted.[3]

The weakness of this situation was that the clerks were doing a job for which they had no responsibility, and for which, at the same time, they received fees and gratuities from the contractors. In 1779 the clerks were ordered to, "examine each other's books...and having done so immediately to countersign each for the satisfaction of the officers who are to inspect them afterwards".[4] Any fraud or neglect would thus require collusion from

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1. SO(a), 883, 28 Jul 1779; also 1028, 27 Sep 1780.

2. PP-CF, p.426. There seemed to be no complaints of the officers' inspection of stores being returned from ships.

3. PP-CF, p.311; Parliamentary Papers, XXXI, Report from the Select Committee on Finance, XIII, Jun 1798, p.491. See also NMM, POR/G/1, 1 Sep 1781.

4. SO(a), 883, 28 Jul 1779. From this point the stores were the responsibility of the Storekeeper.

at least three or four clerks, all from different yard offices; even so, the Commissioners commented, "where the public interest is so materially concerned, it cannot be too well guarded".[1] The same principle of cross-checking governed the making of a Navy Bill by which the contractors were paid. From the records of the receiving clerks, the bill was made out in the office of the Clerk of the Cheque; it was then signed by the principal officer, and circulated to the other officers and their departments for checking and signing. Having been signed by the Resident Commissioner, it was then transmitted to the Navy Office, where it was signed by at least two of the Navy Board Commissioners. At least seventeen people took part in the progress of a Navy Bill; it was signed seven times, and checked four or five times.[2]

Yet the effectiveness of this extensive checking was nullified to a large extent by the clerks' fees and gratuities. Established by long custom, although forbidden by numerous orders,[3] these fees were calculated on the value of the stores being inspected, and formed the most lucrative source of income for the clerks.[4] The arrangements for the reception of stores had grown

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1. PP-CF, p. 305.

2. ibid.

3. e.g. PRO, IND 9315, 7 Nov 1729, 16 Sep 1730, 14 Mar 1760.

4. Approximately 60% of the total income of clerks came from private sources in 1784. (PP-CF, pp. 314, 340-1, 360-3, 390-1, 406-7, 442-5, 476-9).

up by custom, and, naturally, the senior clerks received the more remunerative species. The allocation of duties was therefore determined by financial criteria rather than by any principle of responsibility or seniority, and since different yards received differing amounts and varieties of stores, there was a complete absence of standardisation in the tasks undertaken by the clerks in the different yards. In many cases these duties were established so firmly that the principal officer found himself powerless to allot duties as he wished.

The weakness of this situation, as the Commission on Fees realised, was that the most senior clerks tended to be doing the least senior and responsible tasks. The most senior in each office, except at Plymouth, inspected and checked the Navy Bills for every commodity - for, of course, a fee. At Deptford, for instance, in each of the three clerical offices, the first clerk examined the Navy Bills, the second received timber and the third received those stores known as "instores" (smaller but more valuable items which were stored in the storehouses). At Sheerness the amount of incoming stores were small enough for only one clerk from each office to be involved, but the three larger yards worked under a more complicated system. The Portsmouth Storekeeper had all his nine clerks on reception duties. The most confusing pattern was at Chatham where, for instance, the third clerk to the Clerk of the Cheque, responsible for hemp and

iron, would work with different colleagues from the other offices in the reception of the two materials. The motivating factor that can be seen consistently running through these complications is the economic one. The more valuable the store, the more senior the clerk to inspect it.

The rate of each gratuity was set rather than negotiable, although there were many variations even within the same yard. The clerks at Deptford and Woolwich charged 10/6d for the reception of a hundred pounds worth of English oak, and the other yards from two to three guineas for oak to the value of a thousand pounds. Plymouth, on the other hand, charged only a guinea for the same amount. In the River yards Riga masts were rated at between three guineas and £4-19-0 per shipload. There were further variations for different types of timber, and for hemp and other materials the rates were very confused. From such a ramshackle system it is not to be wondered that this source of income for the clerks was subject to wild fluctuations, especially since it was completely dependent upon the amount of stores coming into the yards. The figures for 1784, given by the Commission on Fees, were at a low level because of the peace. The most representative figures for clerks involved in receipt of stores for this year were the £212 taken by the senior clerk to the Storekeeper at Deptford, and the £93 taken by his counterpart at Portsmouth. Their established salary was an additional £55.[1]

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1. PP-CF, pp. 340-1, 444-5. See Appendix V.

The necessity of paying the clerks who were both receiving a contractor's stores and those who were checking the bill by which he was paid resulted in a complicated and expensive process. A merchant who delivered £1,000 worth of English oak to Portsmouth yard, for instance, paid two guineas each to the three receiving clerks and the Timber Measurer to the Master Shipwright, ten shillings to the first clerk in the Clerk of the Cheque's office for making out the bill, and the same amount to the senior clerk in the other two clerical offices. The first clerk to the Master Shipwright charged double this amount for the same checking. The senior clerk in the Commissioner's office had to be accommodated to the tune of another guinea before the Commissioner signed the bill.[1] Yet more money had to be paid to clerks in the Navy Office. Naturally, the contractor did not let this cut into his profit; in the final analysis, the navy paid for it. When all fees were finally prohibited in 1801 the Navy Board sent a printed letter to all contractors informing them of the new regulation:

> As you will in future be entirely cleared of this expense, we desire you will immediately acquaint us what deduction per cent you would propose to make...If the abatement you propose should not be satisfactory, your contract will of course be advertised. 2

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1. See PP-CF, pp.482-505.

2. PRO, ADM 49/36, Papers relating to contracts, 1740-1810, August 1801.

It is difficult to judge the amount of abuse that resulted from fee-taking by the clerks and from the loose supervision by the officers in the reception and inspection of stores. The clerks' justification for the taking of fees was each individual transaction "expedited" the passage of the contractor's bill, but it was so well-established that they looked upon it as a right; no one contractor would necessarily be favoured. As Middleton pointed out, the fees were paid, "seemingly with the good will of those who paid them".[1] Certainly money was lost to the navy through carelessness, the allowance of short measure and the acceptance of sub-standard materials. In a scandal at Plymouth after the war, for instance, it was found that the reception clerks recorded nothing in rough books while coal was being unloaded.[2] Middleton's informer at Sheerness told of similar troubles with the measuring of coal, and, he reported, "measuring timber...is the greatest cheat in the world...I have measured a piece of timber that has been thirty foot short of the contents marked on it...and many other things I have bit my tongue many times to see it".[3]

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1. BL, II, 176, 16 Sep 1784, to Pitt. The Commission suggested instead that the Clerk of the Cheque should pay 5% interest on the bill for every day's delay (PP-CF, p.309).

2. SO(b), 129, 20 Jun 1783; PRO, ADM 174/118, 1 Ap, 1 May, 20, 28 Jun 1783.

3. ShP, 151, no. 57, undated.

At the same time, there were plenty of cases of imperfect stores being reported to the Board, and of the officers making the appropriate abatement to the contractor's bill.[1] Inspection of contractors' goods was often searching. There were well-tried methods of testing every sort of material. Several tests were made on a cast-iron anchor at Deptford; then, reported the officers,

> we next put one fluke into a hole dug for that purpose and resting the anchor horizontally upon the two pieces of timber, placed the gin for driving piles over it and hove the iron ram of 7 hundred-weight...to a height of sixteen feet, which on the fall broke the shank short in the middle. 2

Absolute standards, always an object of Middleton and later reformers, were difficult to enforce. Timber, for instance, was a notoriously difficult material to measure for both quality and quantity.[3] Timber Inspectors, paid so well as to be above the temptation of taking bribes, were first suggested by Middleton in 1782.[4] Introduced by St. Vincent, their attempt and failure to

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1. e.g. PRO, ADM 106/3404, 3 Oct, 18 Nov 1778; 106/3405, 8 Sep 1780; 106/3320, 30 Ap 1782; ADM 174/17, 30 Jun 1778; 174/116, 16 Oct 1778; 174/18, 17 Nov 1779; NMM, POR/D/21, 27 Sept 1778, 27 Mar 1779; POR/D/22, 5 Aug 1779.

2. PRO, ADM 106/3320, 5 Sep 1781. This test was particularly rigorous, since a cast iron anchor would have been an innovation. Anchors were generally made of wrought iron. See also 11 Ap 1782, NMM, POR/D/22, 5 Aug 1779.

3. The measurement of masts and timber even varied from yard to yard (SO(a), 1017, 18 Aug 1780; 1083, 3 Jul 1781).

4. ShP, 151, no.40, 9 Sep 1782, to Shelburne.

enforce strictness proved that for many years a broad view had been taken of the timber served into the yards. Yet, as has been pointed out, if the officers had wished or been able to take a stronger line, the yards may have been starved of timber as they were in 1801.[1] Stocks had to be kept up, and a certain amount of imperfect material was better than none.

Much more liable to waste and corruption was the process of issuing stores for working in the yard. There were three stages in the procedure of building and equipping a ship. Firstly, materials would be issued to the shipwrights and other workmen concerned in building or repairing. The next stage would be the issue of rigging and sea stores when the ship was ready for launching, and, finally, the stores for the Boatswain and Carpenter were given out as the ship was commissioned. The process was the same at each stage. The principal technical officer signed a note when the stores were "relative to their province", which would be confirmed and signed by the Clerk of the Survey; this would enable the former to draw stores from the Storekeeper. The Clerk of the Survey thus acted as a check on the two technical officers on all issues, while the Storekeeper was allowed to issue nothing without his signature.

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1. See Pool, pp. 118-9.

Once the fleet had been mobilised, the main part of the issuing process consisted of the distribution of stores to commissioned ships.[1] Generally this involved the moveable stores issued to the boatswains and carpenters. Although these stores were "proportioned" by the Masters Attendant and Shipwright respectively, they were the charge and considerable burden of the Clerk of the Survey.[2] The task of supplying the Western squadron fell mainly on Plymouth, and during the war the situation was urgent enough to allow the Navy Board to permit the Resident Commissioner to authorise the issue of stores to ships without the Board's prior approval. Ourry's correspondence is full of this subject, and especially of the slights, mostly real although some are imagined, which the Admirals and fighting navy in general dealt out to him.[3] It took considerable moral strength to resist demands for extra stores, "although the demands may be signed by the Admiral or Commander-in-Chief",[4] and considerable organisation

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1. There was a further category of "present use" stores which were issued while ships were refitting so as to keep their sea stores intact.

2. This elaborate system dated from the 1660's (PRO, IND 9315, 23 May 1663). The Clerk of the Survey signed a warrant for the boatswain and carpenter, and the same clerk who made out the warrant would make out two duplicates. One, entered into the "Survey Book", was given to the commander of the ship, and the other sent to the Surveyor's office in London. For a fee of 2/6, a junior clerk would make out another copy for the warrant officers. A final copy would be made for the Clerk of the Survey's office. An eight months supply of stores for the Boatswain contained 70 items and for the Carpenter 86 (SO(b), 223, 3 Nov 1783).

3. e.g. PRO, ADM 174/116, 24 May 1778, 30 Jul 1779; 174/117, 24 Oct 1780, 26 Aug 1781, 6, 8 Aug 1782.

4. PRO, ADM 174/116, 31 May 1778.

to see that the correct amount of stores reached the correct ships. Eventually Ourry sent one of the Storekeeper's clerks with a store-house labourer on board the lighter carrying the stores to the fleet, "in order that the stores may be delivered on board the respective ships for which they are demanded".[1]

The principle of cross-checking between the offices operated in the issue as well as in the reception of stores. At the larger yards the general rule was that the clerk of each office who was in charge of the reception of a commodity from the contractors would have the charge of its issue from the storehouse. At Deptford and Woolwich there was the additional complication of the huge amount of stores which had to be transported to foreign yards, and there is evidence that this was slackly supervised.[2] As in the receipt of stores, junior clerks would be undertaking responsible tasks while their seniors would be making out the "bills of lading" - which, as might be expected, carried a small gratuity from the masters of the transports.

The stores were accounted for under the headings of "Extra", "Ordinary" or "Wear and Tear", according to the service for

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1. PRO, ADM 174/117, 8 Aug 1782. Any stores which the yard failed to issue to the ships were substituted by a "Bill of Credit" (SO(b), 161, 25 Jul 1783; NMM, ADM BP/4, 23 Sep 1783).

2. e.g. SO(a), 1152, 12 Ap 1782.

which the stores were intended. The clerks to the technical officers would "rate and value all stores wrote for" by their officers, and every month they would go to the Storekeeper's office to examine and sign the Storekeeper's monthly issues account, checking their list against his. The Clerk of the Survey's office would also check this account. This list was then sent to the Surveyor's office in London, so that, as one Standing Order ran, "by a very short retrospect...(we ...may) see the whole expenditure of stores on every service".[1]

However simple this was in theory, in practise it failed to achieve any degree of accuracy. This was largely because of the weakness of the distribution of stores within the yard. The storecabins, in which workmen left stores when they stopped for the night, and which also served as distributing and issuing points around the yard, went entirely unchecked,[2] until Middleton turned to tightening up the issuing procedures in his first months in office.[3] Two infirm and trustworthy shipwrights, who could read, were to man each cabin and keep accounts.

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1. SO(a), 821, 1 Mar 1779; also 804, 2 Feb 1779.

2. The cabins were a convenient place for idlers. "If any artificer...is found idling his time, playing at cards, or lounging in the cabins...(he)...is to be immediately discharged (SO(a), 1125, 22 Feb 1782).

3. SO(a), 771, 30 Nov; 773, 2 Dec; 778-781, 9-12 Dec 1778.

Every week they were to receive an estimate of the stores needed from the Foreman of the yard, and were to demand them from the Storekeeper by demand notes signed by the Master Shipwright and the Clerk of the Survey. The Clerk of the Survey was to keep a continuous account of stores received and issued by all cabins in the yard.[1]

Not surprisingly the success of these measures was limited, partly because customs and interests of long standing could not be broken by one or two orders, and partly because the measures were to a large extent impractical. One officer considered that the works in the yard "rendered it"impossible for the most comprehensive shipwright officersto ascertain with any degree of exactness the various stores required for an ensuing week".[2] In addition, the overwork in the offices of the Clerks of the Survey meant that the storecabin accounts fell far behind.[3] Stores were still issued to unauthorised persons; "it was "still the custom in some yards of issuing stores (to anybody) by a token from a quarterman ~~his officer~~...which led to 'great frauds".[4] A year after the original order the demand note system for the cabin keepers had

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1. SO(a), 764, 30 Oct 1778. Up to this time the officers only had the responsibility of making "frequent inspections" of stores issued to cabin keepers (PRO, IND 9315, 11 Ap 1733).
2. PRO, ADM 106/3404, 7 Dec 1778. The officer was Peter Butt.
3. PP-CF, pp. 312, 433, 468.
4. SO(a), 864, 22 Jun 1779.

completely broken down. Entry of issue notes was being omitted; posting up of notes and totalling them was "much neglected"; the making out of notes was frequently left to the cabin keeper whose charge was being checked; the yard Foreman had not been briefed by the Master Shipwright, and stores wanted at short notice were just issued, as they had always been, without notes.[1]

Little more could be expected at the height of the war, and Middleton had greater success after 1783 as part of his general reorganisation of stores. The system only functioned with great waste and financial loss; undoubtedly more stores were lost once they were in the yard than while they were being received from the contractors. Very often this led to delay, and ships often left a port with inadequate equipment. Martin at Portsmouth made a particular point of complaining of the ships which came round from the eastern yards which made "sudden and frequent demands on his stores".[2] One of Middleton's important measures after the war was the reorganisation of the stores berths of decommissioned ships. The storehouses were,

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1. SO(a), 916, 28 Oct 1779; see also SO(a), 930, 27 Nov 1779; 1080, 2 Jun 1781. In 1785 each quarterman was issued with a small printed book in which he had to record all stores issued to him (SO(b), 359, 15 Feb 1785), a measure first suggested in 1779 (PRO, ADM 106/3319, 14 Jan 1779). See also Admiralty Visitation of 1784 (PRO, ADM 2/261, fo.101).

2. NMM, POR/F/18, 28 Mar 1783.

> arranged with separate berths for every ships' stores; so that instead of having all the storehouses looked over for a single ship's stores, every ship had the power of carrying off her own within twenty-four hours, instead of weeks. 1

Through perseverence Middleton achieved a certain amount, but the difficulties that he faced went deeper than the superficial reform that he was able to implement in the 1780's. Accurate accounting at a low level could only be achieved with the co-operation of the yard officers, who, overworked and resentful of the tightening control of the Navy Board, and lacking individual responsibility, made little effort to correct waste and carelessness.

iv) Surveying and Accounting.

The lack of accuracy in issuing stores was exacerbated by completely inadequate stocktaking, or"surveying". The first weakness was that the Storekeepers were charged with the stores as being their own, for which they held personal responsibility by

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1. BL, III, 30, (May 1804). These berths became one of the many bones of contention between Middleton and Howe; see PRO, ADM 2/261, fo. 97; 106/3222, Chatham Minutes, 1785; Charles Derrick, p.179.

lodging sureties. Full surveys of the stores under their charge were therefore taken only at their death or removal from the post. As long as the incumbent was present, the stores in the yard were his concern.[1] Since Greenway had been Storekeeper at Portsmouth for forty years, and Matthews at Deptford for twenty-two, it is hardly surprising that the Commission on Fees was concerned with this problem.[2] It found that none of the Storekeepers had taken a full survey of their stores during their tenure of office.

The Commission had to admit that a "general survey is both tedious and expensive".[3] The time taken in 1781 to survey the stores at the smallest yard, Sheerness, when the Storekeeper moved to Woolwich, prompted Middleton, with Admiralty approval, to modify the system. In future only the "indoor" stores were to be surveyed; the incoming Storekeeper received his charge of stores kept "outdoors" from the books of his predecessor.[4] Even so, a survey was still a considerable task. When Jacob Pownoll succeeded Philip Justice as Storekeeper at Plymouth in January 1782, the clerk from the office of Storekeeper's Accounts at the Navy Office, who was in charge of the survey, was down at Plymouth

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1. Incumbency could be transferred. In 1785 the Clerk of the Survey at Sheerness and the Naval Officer at Gibraltar were allowed to exchange posts, "provided they receive (each other's) stores at no expense to the public" (NMM, ADM BP/6a, 25 Jul 1785).

2. PP-CF, pp. 426, 330.

3. PP-CF, p.310.

4. NMM, ADM A/2760, 10 Feb 1781; ADM BP/3, 6 Feb 1782; ADM A/2772, 20 Feb 1782; SO(a), 1124, 22 Feb 1782.

for at least ten months.[1]

Nevertheless, the Commission felt that the difficulties of attempting a regular survey of stores was overrated by the yard officers. It recommended that all the officers should survey the stores every three months, and compare the findings with the remains in the Storekeeper's ledger. At the end of the year, a clerk from the Navy Office should certify the amount. Only the Woolwich Storekeeper was receptive to any idea of a closer control of stores:

> He is of the opinion that if the Storekeeper's ledger is closely posted up (which he does), it may be ascertained quarterly how far the remains there agree with the articles actually in store. 2

Although allowance must be made for the difficulties in surveying material which was bulky, liable to rot and consumed in large quantities, the Storekeepers did not make it a rule to strive after accuracy. "Sometimes" the Deptford Storekeeper took "partial surveys of particular articles for his own satisfaction; but in general, in the bulky articles, the remains can only be guessed at".[3] The difficulties of making outgoing officers answerable for losses meant that there was little incentive for

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1. PRO, ADM 174/19, 2 Feb 1783.
2. PP-CF, pp. 352; also p.355.
3. PP-CF, p.331.

any officer to do any more than to see that his accounts were passed and balanced; what was actually in the yards seemed at times immaterial. Jacob Pownoll, the first Storekeeper to be governed by the order of 1782 for partial surveys stated the situation plainly: "The quantities remaining...do not correspond with those remaining upon his books, which is owing to his remains having been carried on without any alteration for many years past".[1]

A second weakness was caused by a well-intentioned attempt to simplify the accounting of timber expenditure. In 1772 the Navy Board ordered that, "every rough log brought into the yard should, although it is carried to the sawpits, and sawn into thick-stuff ~~and~~ or frame, continue to have the rough contents marked upon it".[2] The Storekeeper was then to be charged with the rough timber, "notwithstanding it being sawn or converted", until it was used, when he was to be discharged of it agreeable to its contents when first received into the yard. This was a logical attempt to bypass a stage in the accounting procedure, yet it was a failure, partly because of the difficulty of accounting for a log which could be cut into two or more pieces as one piece of timber, and partly because the officers and men made little effort to adapt to the new method. "This new mode", wrote John Greenway to Edward Hunt, confused the quartermen by calling, "all parts of the conversion

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1. PP-CF, p. 463.
2. SO(a), 599, 26 Feb 1772.

what it is not", and he feared that the workmen would never learn the new way. This resulted in huge errors in accounting, and the consumption of timber in particular was consistently underestimated; this the Storekeeper could not correct.[1] Greenway claimed that he, "could only take such credit as the monthly expense allows me; nor can the Builder act otherwise than adopting the quarterman's notes".[2]

Suspecting a deficiency, Greenway had had a "cursory" survey of timber in the yard taken in June 1781. A third of the straight, and half of the compass English Oak was not there. On the other hand, there was a surplus of 1,556 loads of English thickstuff. In all, he was 8,722.39 loads short, and he suspected that the brevity of the survey had had the effect of considerably underestimating the shortage. The result of this survey throws doubt on any official returns during this period, for Greenway was the most consistently efficient Storekeeper; if there was this situation at Portsmouth, what must it have been like at Chatham? Greenway commented: "The evil is a serious one, for the balance of my accounts will never agree with the state of real timber in the yard...I apprehend other yards must have found this inconvenience".[3]

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1. The Navy Board was vaguely aware of this. One order to Plymouth complained of "great deficiencies in your accounts...by your not having charged the whole that has been expended thereon" (PRO, ADM 174/17, 24 Mar 1778).

2. BL, II, 33, 2 Mar 1782.

3. ibid, pp. 33-4. See also PP-CF, p. 427.

As a result of the Portsmouth Storekeeper's investigation, the Board reverted to the old method of accounting in 1784, and annual surveys were ordered to be taken by the Timber Measurers of each department.[1]

The final weaknesses were due to the inaccuracy of accounting methods within the yards. Completely different systems were used from one yard to another. The most logical system was at Portsmouth, and the Commission on Fees recommended this as a model for the other yards.[2] Here all the stores received, either new from contractors or old from carpenters or boatswains of ships after a commission, were entered into a daily receipt book. They were then abstracted every month under the different items of stores, and the total value of this would be added to the Storekeeper's original charge, or the "debtor" part of his account. The "credit" (or issue) part of his account followed the same procedure in reverse, except that the charges were put into four books; the two technical officers' accounts on the "Ordinary" and "Extra" Estimates were entered into each one separately. From these current accounts abstracts were sent to the Navy Board. The Commission was

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1. SO(b), 279, 20 Feb 1784; PP-CF, p.427.

2. For the following account see PP-CF, p.427. By 1798 this method had been "generally adopted" by the other yards (Parliamentary Papers, XXXI Report from the Select Committee on Finance, Jun 1798, XIII, p.492.

of the opinion that if these books were kept up regularly,[1] and that the balance was struck every quarter, a "tolerably correct comparison" of the actual remains of most of the stores could be made.

Nevertheless, the gap between the accounts and stores which were actually in the yards remained. Nor was there any effective machinery for narrowing it. When occasional surveys were ordered for any reason, there were some revealing results. The Storekeeper at Deptford was ordered to take a survey of seamen's beds in his store in 1778. The findings elicited the following entry in the Navy Board minutes: "Acquaint him we are surprised to find that he only has 670 new beds in store, as it appears by the Progress...that there were 4,649".[2] Likewise the Clerk of the Ropeyard at Plymouth was found to be short of 110 tons of hemp.[3] The Commission on Fees asked:

> Of what use is the office of the Examiner of Storekeeper's Accounts in the Navy Office, but to correct numerical errors, if the remains which appear upon paper are never checked with the actual remains in the yard? 4

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1. For the sort of difficulties which could occur when accounting fell behind at the height of the war, see e.g. NMM, POR/D/21, 13 Feb 1779; POR/D/23, 12 Mar 1783; PRO, ADM 106/3319, 16 Feb 1779; 174/18, 20, 29 Sep 1780.
2. PRO, ADM 106/2597, 17 Jan 1778.
3. PRO, ADM 174/17, 30 Jul, 4 Sep 1777; 174/116, 7, 19 Sep 1777.
4. PP-CF, p.310. Gregson reported that William Bateman, the Comptroller of Storekeeper's Accounts, was rarely at the Navy Board, "perhaps not twenty times a year" (ShP, 151, no.87, 2 Sep 1782).

This inaccuracy was only part of the weakness of the system of returns to the Board in London. Frequently the accounts were late; sometimes they were not sent at all. Middleton did not exaggerate when he wrote:

> On my coming into office, I found the periodical returns, on which accuracy and oeconomy depend, lose, distant in time, ill-adapted and in fact not used for these purposes. They were transmitted indeed from the dockyards, but laid up in the several offices as waste paper. The Board, therefore, had but ...a very uncertain account of the state of their stores. 1

The system had, in fact, all but broken down. The evidence of the Navy Board minutes largely bears this out. Few accounts were sent in regularly, and those that were, were hardly central to the supply problem. For instance, between January and June 1775 17% of the monthly cordage accounts never reached the Board at all, while 40% of those that were sent were more than a week late. At this time Plymouth appeared to be the most punctual, and Deptford the least. A sample of the first six months of 1778 show the system to have functioned even less efficiently.[2] However, an examination of these minutes may well not provide the whole picture, for some information was included in the weekly progresses; in addition, there had been a tendency for yard officers to send their accounts to the chief clerks of the different departments at the Navy Office, thus bypassing the Board.[3]

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1. NMM, MS66/086, Observations on the Navy Board.
2. PRO, ADM 106/2592, 2597.
3. NMM, POR/G/1, 17 Jan 1783.

The arrival of Middleton at the Navy Office signalled the start of trouble for the Storekeepers. Within three months, the Comptroller had sent a strongly-worded order to the two western yards to bring their accounts up to date. It was an unfortunate time for the yard officers, for the mobilisation had, as Greenway pointed out to the Board, "constantly engaged the attention of myself and (the) clerks in the day season, and only left us the nights and Sundays to bring up (the) accounts".[1] He, however, had less trouble than Philip Justice, the Plymouth Storekeeper, in fulfilling Middleton's demands. Justice had been in the post since 1754, and any complacency which he might have felt from being so long in office was to be rudely shattered. Until his retirement in January 1782 he received a steady stream of threatening letters from the Comptroller. As early as November 1778 the Storekeeper was told that if the accounts were not sent, "in the two months after each quarter", the Comptroller would "stop the payment of your salary".[2] A year later the threat was different: "In case this order is not strictly complied (with) we shall on the first deficiency apply to the...Admiralty to remove you from your office".[3] Eighteen months after this order Justice decided to retire.[4] Nor had his successor settled in before the

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1. NMM, POR/D/21, 26 Oct 1778.
2. PRO, ADM 174/17, 18 Nov 1778; see also SO(a), 569, 10 Ap 1771.
3. PRO, ADM 174/18, 25 Oct 1779; see also 174/116, 1 Dec 1776; 174/117, 7 Jan 1780; 174/17, 23 Jan 1779; 174/18, 19 Jan, 19 Ap 1780.
4. SaP, IV, 381-2, 13 Ap 1781, Middleton to Sandwich.

letters demanding accuracy and punctuality had started again.[1]

By this sort of pressure and much perseverence the Comptroller made solid progress through the 1780's, and the accounts and returns from the yards were eventually restored to their pre-eminent position in the estimation and distribution of the stores to the yards. He was unable to achieve anything comprehensive during the war, although when shortages did occur, a few accounts were systematised.[2] At first his strictures on punctuality and accuracy foundered upon decades of slackness. Weekly progresses were still late, causing "unaccountable confusion", and the officers were admonished in very strong language. Lists of all the returns and the dates by which they were to be completed were to be hung in every office in the yard. The Clerks of the Cheque were made responsible for punctuality, and in order to give them some authority, they were ordered, "not to receive any return that is not totalled in every page where it may be necessary, and titled on the back".[3]

The final task was to produce a comprehensive list of all the returns to be transmitted.[4] It bore little resemblance

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1. PRO, ADM 174/19, 18 Ap 1782, 11 Jan 1783; 174/117, 5 May 1782.
2. Shortages of masts, anchors and iron ballast necessitated detailed returns (SO(a), 757, 28 Sep; 772b, 1 Dec 1778; 1005, 17 Jul 1780; PRO, ADM 95/96, 17 Jul 1780).
3. SO(b), 235, 27 Nov 1783; 270, 27 Jan 1784.
4. SO(b), 37, 19 Feb; 215, 16 Oct 1783; 266, 20 Jan 1784.

to the thin and irregular accounts and returns received by the central administration before and during most of the war. Of all the aspects of naval administration that Middleton turned his hand to in the 1780's, the administration of stores from London was the most successfully reformed. Since the Comptroller was putting his own house in order, he did not need the sanction of Howe at the Admiralty. His obstacles were the yard officers and the inbred attitudes of carelessness and lack of incentive. Although Middleton was not able to apply the complete remedies for these weaknesses, the machinery for distributing the stores was put into a respectable state of efficiency; he was justified in writing towards the end of the decade:

> By degrees, an entire set of returns, applying to the present state of the yards, was formed; and by an obstinate perseverence in the teeth of the irregularity, ignorance, and negligence of the yard officers, which were provoking beyond description, they are bought into better than tolerable order, and now fully reward the trouble that I had in establishing them. 1

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1. NMM, MS66/086, "Observations on the Navy Board".

v) Waste and Decay

The Storekeeper of each yard had been charged by the 1662 Instructions with the protection of stores from "Waste as Decay, Stealth or Embezzlement".[1] However well the stores were administered, there was bound to be waste, for eighteenth-century materials were particularly liable to rot. Sails and cordage were the most susceptible. One of the Master Attendants' duties was to regularly inspect the sail loft, and each summer the sails were, or should have been, aired by the storehouse labourers. General care for the stores was still the responsibility of the Storekeeper, especially to see that the magazine was "properly aired and preserved".[2]

However, it was the "outstores", especially timber, which suffered most from decay. Three members of the Navy Board, Palliser, Williams and Brett, noted in 1771 that there was, "not sufficient room in the dockyards for stowing and seasoning the timber, which suffers much by being heaped one piece upon another, exposed to sun and rain, but that sufficient room might be had if wanted".[3] Timber lying around the yards was much in evidence at

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1. 1717 Oeconomy, p.77.
2. PP-CF, pp. 351, 431.
3. 1771 Timber Report, p.18.

the early Visitations, but Sandwich managed to improve the situation by ensuring that seasoning sheds were erected in all the yards. At the same time, the care of the officers and men was as important as improved facilities. The stowage of timber called for care; it was important to place a small piece of wood between each log or plank so that air could reach every part of the timber. With the pressures of wartime, the yard labourers had more pressing tasks. In 1781, for instance, thickstuff was found to be "bent and open at the ends" through lack of air.[1] Nor was timber the only commodity found to be carelessly stored.[2]

Many other stores decayed because they were not stored away quickly enough. The disorder at the demobilisation of 1783 was typical of the century. Most of the trouble was caused by the lack of storage space, especially for the more bulky stores such as rigging and masts. In late 1782 the Plymouth officers proposed erecting temporary rigging sheds, for they were, "apprehensive if we have not sheds and places to stow it immediately away...great confusion will happen".[3] Eventually the Navy Board decided to allow the lower masts to stay in the ships, although most of the stores came ashore as there was less

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1. SO(a), 1089, 23 Aug 1781.

2. e.g. SO(a), 609, 26 Aug 1772.

3. PRO, ADM 174/117, 10 Dec 1782; also NMM, POR/F/18, 9 Feb 1783.

risk of embezzlement here.[1] Only slightly less confusion reigned at a mobilisation. Ideally the oldest stores were issued first, but the repeated orders throughout the century on this subject shows that this was not easy to enforce.[2] Since the oldest stores were more than likely to be at the bottom of the pile, it was a temptation for the supervising clerk to issue the newest to save time and trouble. Besides, the sea officers would demand the best. Middleton's scheme for berths for individual ships did a great deal to solve this problem.[3]

The sea officers were even more careless. Spithead and Cawsand Bay were littered with anchors which had been lost through negligence, and had not been reported. Nicholson and Gilbert, the two Master Attendants at Portsmouth, wrote to the Board telling it, "how light some of the officers of the service make of the loss of an anchor and cable".[4] The result was that the Navy had to pay out salvage claims for broken gear caused by the anchors or for anchors that were recovered, although the Master Attendants spent all their spare time in sweeping for them.[5]

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1. PRO, ADM 106/3320, 24 Ap 1783; ADM 174/19, 3 May 1783.
2. PRO, IND 9315, 2 Mar 1715, 21 Jun 1721; SO(a), 665, 22 Jul 1774.
3. See above, p.230; BL,III, 30, (May 1804); SO(b), 223, 3 Nov 1783.
4. NMM, POR/D/23, 18 May 1782.
5. e.g. NMM, POR/C/22, 16 May, 11 Sep 1775; PRO, ADM 174/116, 25 Aug 1778; 174/117, 26 May 1780, 8 May 1781; NMM, POR/D/23, 3 Jun, 8 Oct 1782.

The navy also suffered an unnecessary loss of ships' boats. Martin thought it necessary to repeat to the captains, "in the strongest terms" the orders about frugal expenditure of stores, since he reckoned that, "it has been the practice to let the boats be damaged or go adrift when those boats have not pleased them".[1]

The final point at which naval stores were wasted was when they were sold off as being no more use. When enough old stores, "sufficient for twenty to twenty-five lots" (of not more than twelve tons each) had accumulated, they would be divided into lots under the direction of the Storekeeper and sold at an auction by the Commissioner.[2] Most of these stores consisted of old rope and cordage, inferior hemp and rigging. Between 1765 and 1785 the Navy sold 14,389 tons of this type of store;[3] there were 62 such sales between 1774 and 1783, ranging from two in 1775 to fourteen in 1783.[4] Prices ranged from five to seven pounds a ton at the western yards, but better prices were to be had in the River.[5]

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1. NMM, POR/F/18, 28 Mar 1783.
2. PRO, IND 9315, 9 Jul 1749, 31 Oct 1750. See Pool, p.103. The sale of naval stores needed the formal covering authority of a Privy Seal (e.g. NMM, ADM B/190, 11 Aug 1775). This approval (a custom of long standing) may have been necessary because special significance was attached to the alienation of a Crown asset. I am grateful to Mr. Bernard Pool for this suggestion. The Navy Board was responsible for selling large ships, but the Resident Commissioners sold off sixth rates.
3. NMM, ADM BP/6b, 27 Jun 1786.
4. NMM, ADM A/2675-2794.
5. PRO, ADM 174/17, 2 Jun 1778; NMM, POR/D/21, 16 Sep 1778.

Middleton was convinced that the sales of old stores were liable to much corruption.[1] It is true that stores were improperly surveyed, and that on occasions perfectly good stores were cut up and sold as useless. A more frequent occurence was that old rope (known as junk) was sold at Plymouth when it was needed at the River yards for caulking purposes.[2] Not long after the Comptroller came to the Board he started tightening up the regulations in regard to the officers and clerks who priced the stores and managed the sales.[3] Later the procedure for the transmission of bills to the Treasurer of the Navy was formalised.[4]

One of the greatest weaknesses, however, was the slowness with which the merchants who bought the old stores took away their goods. The only way that merchants could extend the month's time limit for the removal of their goods was to obtain permission from the Navy Board; this permission was rarely withheld, and the result was that the yard officers

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1. e.g. PRO, 30/8/111 (part 2), fo.139, 16 Sep 1784, Middleton to Pitt; see also NMM, CHA/E/33, 22 Sep 1781.

2. e.g. SO(a), 570, 30 Ap 1771; 704, 21 Feb 1777; 929, 27 Nov 1779; PRO, ADM 174/19, 9, 16, Ap 1783; NMM, POR/F/16, 13, 23 Jun 1777.

3. SO(a), 883, 28 Jul 1779; 986, 12 Jun 1780; PRO, ADM 174/117, 20 Aug 1782.

4. SO(a), 1193, 11 Sep 1782; SO(b), 92, 7 May; 126, 16 Jun 1783.

did not know what to do with the amount of stores which piled up in the yard.[1] Greenway at Portsmouth was particularly worried about the difficulties of dividing the stores into lots, and claimed that he did not have enough labour for this task.[2] An enormous amount of old stores accumulated at the two western yards, and especially at Portsmouth, towards the end of the war. The accumulation of too many old stores also had the disadvantage of keeping down prices when they were sold.[3]

The sale of old stores completed the process of the administration of stores which was subject to waste from decay and embezzlement at every stage. However, inefficiency and shortcomings in the organisation were more responsible for loss of materials and money than the faults for which the yards have long been well known. Shortages and delays and mistakes in planning and distribution had more effect upon the output and cost of the yards than petty thieving and individual corruption. The system had developed into a position whereby it wasted

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1. The merchants would forfeit their deposit if their goods were not taken away within the month; this was later changed to forty days (SO(b), 457, 17 Oct 1786).

2. PRO, ADM 174/116, 20 Oct 1778; NMM, POR/D/22, 18 Sep 1779, 4 Ap 1782; POR/G/1, (?) Jun 1780 (enclosure); POR/D/23, 31 Mar 1783.

3. The Commissioners more than once withdrew lots from sale because they had "reason to believe a strong combination" among the bidders (e.g. NMM, POR/F/17, 8 Dec 1778; PRO, ADM 174/117, 4 May 1781.

resources at every point. Yet this waste had to be tolerated if the administration was to continue, for working with materials which were difficult to work and measure, the lack of incentive for the clerks to be accurate and honest and the difficulty of implementing adequate central control were all, by the terms of the eighteenth century, insurmountable problems.

Chapter Five. Technical Problems and Yard Facilities.

i) Innovation and Inventions.

The period of the American war differed but little from earlier in the century in the field of technical advance. The inherent strength of wood limited developments in ship design, and, in fact, the wooden sailing ship was to develop only a little more before its eventual demise. The major problems which engaged the attention of the Navy Board and the yards were largely concerned with lengthening the life of materials and equipment, and finding adequate substitutes for stocks of timber which seemed likely to disappear. Attempts to solve these problems were essentially pragmatic, and although certain advances were made, efforts were piecemeal and pedestrian. The one exception to this rule was the introduction of copper sheathing; the importance of this process merits separate consideration.[1]

The Navy Board had long been a conservative influence upon design; new ideas had at least to be proven before they were considered. A theoretician such as Jeremy Bentham's younger brother, Samuel, ... found such an attitude uncongenial. Jeremy wrote of him: "From the Navy Board...he knew he had nothing to

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1. See below, pp.274-295.

expect. Their rules were against him: and their prejudices still more".[1] Theory was considered unnecessary; Sir John Williams reportedly said that if Samuel, "had the abilities of an angel, they would be of no use to him".[2]

However, this attitude was not confined to the Navy Board, for the Board had its own troubles in making new ideas acceptable among ships' commanders, who, because of the large amount of control they exerted over the fitting of their ships, often obstructed the wishes of the Board. When the Admiralty found that there was difficulty in getting carronades accepted,[3] Middleton recalled, in a letter to Sandwich, that copper sheathing had been slow in gaining approval, "but by making it a favour till its merits were acknowledged it has become the wish of all parties".[4] The Comptroller predicted correctly, for carronades were eventually accepted. In spite of difficulties with the Ordnance Board and with fitting the new guns, the prejudice of the captains had largely disappeared by the

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1. T.L.S. Sprigge (ed), The Correspondence of Jeremy Bentham (London, 1968) II, 109, April/May 1778. See also Knight, pp.178-184.

2. Sprigge, II, 110.

3. NMM, ADM A/2749, 8 Mar 1780.

4. SaP, IV, 416, 12 Mar 1780; see also Sprigge, II, 109.

beginning of 1782.[1] In theory it was very necessary that the dockyard and sea services kept in close touch over technical matters. Complicated procedures existed by which captains had to report closely on the sailing characteristics of their ships.[2] However, more often than not, the Board was in conflict with the commanders, and never more so when these commanders wished to implement a pet scheme of their own.[3]

In the Navy Board's defence it must be stated that it examined many inventions which were totally impractical. A variety of pumps, inventions for "cannon-proof ships" and a machine for "rowing ships against the wind or water without the assistance of men" were proffered to the Board for inspection.[4] Familiarity with such schemes tended to make the Commissioners sceptical of new ideas, and although many were tested, virtually all were rejected. There was, however, more chance of having an invention accepted if the Admiralty was approached first. Between 1774 and 1783 it ordered the professional board to test nearly forty inventions from private sources, but every one was rejected.

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1. NMM, ADM A/2752, 26 Jun; A/2758, 15 Dec 1780; BP/1, 18 Dec 1780; A/2760, 26 Feb; 2770, 8 Dec 1781; BP/2, 12 Dec 1781; BP/3, 13 Ap 1782. For Mulgrave's opposition see SaP, IV, 413-422. On the other hand, an enthusiastic reception of an innovation by an Admiral could speed acceptance. See PRO, ADM 174/116, 25 Aug, 4 Dec 1778.
2. PRO, ADM 174/19, 16 Ap 1782; SO(b), 169, 4 Aug 1783.
3. e.g. Sir Charles Douglas's gunnery innovations were successful, but his fertile imagination had to be restrained; see BL, I, 267-8, 12 Jul 1779, Douglas to Middleton; ibid, p. 282, 28 Ap 1782; NMM, CHA/E/33, 9 Ap 1781.
4. e.g. NMM, ADM A/2753, 15 Jul 1779; A/2761, 5, 12 Mar 1781.

Nevertheless, once the Board had been convinced of the practicability of an idea there was no lack of willingness to experiment. Apart from carronades and copper sheathing, there were advances in the making of cordage and chain moorings, while there was a long series of experiments with "fresh water machines" fitted to ships.[1] Once the troubles with Coles's chain pump were resolved, the navy had a more efficient pump.[2] A small improvement was also made to ships' blocks.[3] However, the effect of the war was to retard innovations, for the Navy Board had little time to devote to anything which was not essential to the daily running of the war;[4] on the other hand, accepted ideas were implemented more quickly under the pressure of hostilities.

Some problems were never solved. While the adoption of copper sheathing largely cured the problem of the worm, dry rot remained a constant source of worry. Ships built with "green" or unseasoned timbers were most likely to develop this condition. As a preventive step, Sandwich intended that considerable care

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1. SO(a), 626, 24 Mar 1773; NMM, POR/F/15, 23 Mar 1775; PRO, ADM 95/95, 23 Oct 1775, 7 Jul 1777, 2, 13, 21 Jul, 3 Sep 1779.

2. SO(a), 620, 6 Jan 1773; 832, 13 Ap 1779. See Falconer, pp.222-3.

3. SO(a), 575, 14 Aug; 581, 7 Oct 1771; SO(b), 43, 28 Feb 1783. See K.R. Gilbert, The Portsmouth Blockmaking Machinery, (Science Museum, 1965) p.2.

4. e.g. PRO, ADM 106/1274, 7 Feb 1782; 174/19, 20 Jun 1783.

should be taken to see that ships were built with properly-seasoned wood. The newly-constructed seasoning sheds were to contain enough timber to ensure that the wood had been seasoned properly before it was issued for use. Two-thirds of it was to be stored in a sawn state, and a third rough.[1] Thickstuff was to be sawn at least a year before it was used, and knees were to be shaped as soon as they were brought into the yard.[2] One of the first orders which Sandwich issued was that ships were to be left in frame for a year to season on the stocks.[3] However, the problem of damp penetration in hulls under construction was not solved by this order, although some success was achieved after the war with wooden housing built on top of the ships.[4]

However, as a private shipbuilder, William Wells, pointed out to Sandwich, it was, "necessary that equal care should be taken of these ships after they are built as before".[5]

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1. SO(a), 612, 4 Sep 1772; 649, 16 Nov 1773.
2. SO(a), 567, 4 Ap 1771. Special instructions were issued for storing thickstuff (SO(a), 1089, 23 Aug 1781).
3. Frigates were to lie for six months. This order was suspended during hostilities (SO(a), 567, 4 Ap 1771; 728, 22 Nov 1777; 738, 18 Mar 1778; SaP, I, 363, 16 Mar 1778; NMM, ADM A/2732, 21 Oct 1778; B/197, 30 Oct 1778, Admiralty to Navy Board; SO(b), 47, 4 Mar 1783).
4. e.g. SO(a), 594, 2 Jan 1772; NMM, ADM A/2792, 2 Oct 1783; ADM BP/6b, 3 Aug 1786.
5. SaP, I, 15, 20 Feb 1771.

In the ships in Ordinary, especially, dry rot flourished near the waterline, where conditions were particularly warm and damp.[1] During these years many ideas were tried in order to keep damp from the insides of ships. Wells suggested that plank should be stripped from ships in Ordinary to allow a free circulation of air, and this was ordered.[2] Windsails were tried in an effort to increase ventilation, and elaborate instructions were issued for the operation of these machines.[3] Later, patent stoves were used.[4] Canvas awnings were used to protect ships in Ordinary from rain and sun, but these were not satisfactory, and experiments were made after the war with "sheds" built on the ships.[5] Yet in spite of these efforts, the decay of ships at anchor continued. "The curse of wooden ships for centuries ...", writes Albion, "dry rot remained unmastered to the end".[6] Many attempts were made to find a solution; in one drastic instance, which the First Lord saw during the 1773 Visitation, the timbers of the Acteon (28) were boiled. The final effect

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1. See Albion, pp.11-15, 82-85.

2. SaP, I, 16; SO(a), 571, 10 May 1771.

3. SO(a), 609, 26 Aug 1772; 624, 24 Mar; 636, 20 Jul; 639, 10 Aug 1773; 663, 24 Jun; 665, 22 Jul 1774.

4. SO(a), 996, 29 Jun 1780; SO(b), 7 Ap 1783. Neither idea was new; see Baugh, p.244.

5. SO(a), 665, 22 Jul 1774; PRO, ADM 174/116, 30 Ap 1776; 174/19, 30 Jan 1783; SO(b), 80, 22 Ap; 101, 16 May 1783; NMM, POR/F/18, 15 May 1783.

6. Albion, p.11.

is not known, but Sandwich observed at the time that, "the timbers had many unfavourable appearances already", for they "were greatly cracked and rent".[1] Although he enjoyed little success, Sandwich at least grappled with the problem.

The final technical problem was the provision of masts of sufficient quality and quantity. R.G. Albion's contention that the American war disrupted the supply of pine trees from New England, and that this in turn created a grave shortage of masts for ships of the line has recently been challenged.[2] Certainly, his idea that the yards were forced to revive the "lost art" of making up masts from several pieces of wood instead of relying on large sticks is false.[3] "The lower masts of the largest ships", wrote Falconer, "are composed of several pieces united into one body..as a mast, formed by this assemblage, is justly esteemed much stronger than one consisting of any single trunk, whose internal solidity may be very uncertain".[4] Albion also asserts that the Navy Board failed to stockpile sufficient sticks, but in January 1778 there were 149 rough masts of between 27" and 34" diameter at Portsmouth.[5] In fact, the

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1. PRO, ADM 7/660, fo. 71. That Sandwich fully realised the importance of seasoning is proved by his analysis of the shipping situation in his notes on the 1774 Visitation (PRO, ADM 7/661, fos. 74-82).
2. See Albion, pp. 281-315; Williams, pp.315-327; also Mackesy, p.169.
3. See Albion, pp. 286, 288.
4. Falconer, p.189. In May 1778 Plymouth yard was ordered to prepare eight masts "out of the smallest sticks" (PRO,ADM 174/17, 16 May 1778).
5. NMM, POR/D/21, 13 Jan 1778.

tactical surprise and efficiency of the French at Ushant merely embarrassed an already pressing situation, although Plymouth supplied the Channel fleet in August 1778 very quickly by stripping the ships in Ordinary of their spars.

Nor was the cessation of supplies from America followed by any fall in the quality of materials. The navy now had to buy its pine trees from the Baltic port of Riga, but sticks from here were, "preferred above all others for their quality".[1] It is true that the largest of these masts were not as big as those from America, but Albion fails to point out that sticks of over thirty inches diameter were rare, even from New England.[2] During 1780 the yard officers were asked to suggest ways of reducing mast consumption, and the Portsmouth officers considered that since masts were now made of Riga fir, they could be made one inch less in diameter, "as they will be superior in strength, much cheaper and of less weight aloft".[3] On the face of it, there seems little to put the navy at any particular disadvantage in this war.

The real problem was the great length of time which had to be spent in making these masts. As early as February 1778

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1. Albion, p.31.

2. See Williams, p.314.

3. NMM, POR/D/22, 24 Ap 1780. Models and drawings of made masts were sent to Plymouth in August, so this advice may have been taken (PRO, ADM 174/18, 23 Aug 1780). A further reduction was advised against (PRO, ADM 106/3320, 11 Sep 1783).

there were six extra gangs in the Portsmouth mast house, and the Master Shipwright wanted them to work "nights"[1]. In April they could still not keep pace, and by August the shipwright officer was resisting Navy Board attempts to put more gangs into the mast house on the grounds that it was impractical.[2] It was not only after the damage to Keppel's fleet at Ushant in August 1778 that the shipwrights had to be taken off other projects to help with masts.[3] However, after this experience the western yards built up a stock of "made" masts, in which considerable task they were aided by contractors who made the smaller spars.[4] This stock had not been necessary before, and because of the former lack of standardisation, it is doubtful whether it would have been practicable.[5]

The whole question of the quality of masts is complex, for their efficiency and longevity were dependent on many factors. The weakness of Albion's case is that he fails to consider mast consumption over the century as a whole. Complaints from sea

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1. NMM, POR/D/21, 15 Feb 1778.
2. ibid, 21 Ap, 21 Aug 1778.
3. e.g. NMM, POR/D/22, 6 Sep 1779, 21 Mar 1780.
4. e.g. PRO, ADM 174/18, 17 Aug 1778; 174/116, 27 Aug 1779; 174/117, 5 May 1782. An establishment was not set up at Plymouth until 1780 (174/18, 12 Jun 1780).
5. This standardisation, Sir John Williams informed the King, "was much wanted, because now the furniture of one ship of the same class will suit any other of that class, which before it would not" (G,III, 59, 11 Jan 1774).

officers concerning their masts were not new to this war. Daniel Baugh, writing of the heavy loss of masts and the consequent complaints from the sea service during the war of 1739-48 is, "pretty well convinced...that overmasting and the reckless crowding of sail were the most important factors." [1] Another factor which is difficult to assess is the quality of shipboard maintenance; another was the quality of the rigging. When the shortage of great masts in Europe began to worry the Navy Board in 1780,[2] the yards were ordered to issue rigging in good time,

> as there have been many instances during the present war of ships losing and springing their lower masts and top masts, from a want of time to enable them to stretch their standing rigging before they...proceed on service. [3]

The sea service had just as important a role to play as the dockyards in preserving the nation's masts. Consumption was undoubtedly high during this period, but it is wrong to look at the American war in isolation from the rest of the century.

The navy had many technical problems to overcome, and the lack of effective maintenance added to them. This was true both for ships in and out of commission. Not the least of the

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1. Baugh, pp. 278-9n.
2. NMM, ADM BP/I, 27 Mar, 8 Dec 1780; ADM BP/2, 3 Mar 1781.
3. SO(a), 1018, 24 Aug 1780; see also SO(a), 637, 30 Jul 1773.

problems of the central administration was the discipline of the seamen of the Ordinary, for initiative from London was often robbed of its effectiveness by slackness at this level. At the same time, progress was hindered by an attitude to innovation which reflected the general lack of sympathy with change; ideas were in tune with the pre-industrial age which was fast drawing to a close. The design of faster and better ships lagged behind the French because of a lack of, and, indeed, feeling against a theoretical approach. The only ideas that were likely to convince the Board were those which were practical and proven, originating from someone within the service with professional experience. The coppering of the fleet illustrates how, once the professional board had been convinced, it was possible for an innovation to be quickly implemented. The speed and success of this undertaking was the most impressive achievement of the dockyards during this period.

ii) The Introduction of Copper Sheathing.

The most important technical innovation to come out of the American War was the sheathing of the hulls of ships with copper, and it was the British who developed this technique and

kept the initiative from the French. The effect of the copper was to keep the ships relatively free of weed, and thus improve their sailing performance, while at the same time it afforded better protection for the timbers against the ravages of the worm than the existing sheathing. Of the first of these advantages there is ample evidence, and the development did much to offset the numerical disadvantage of the British fleet. Kempenfelt's much-quoted dictum that twenty-five coppered ships of the line were enough to "tease" the combined French and Spanish fleet in the Channel in 1779 served to illustrate the inefficiency of the enemy rather than the advantages of the new sheathing, but coppered ships quickly became a factor to be taken into strategic as well as tactical consideration.[1] Individual reports were never less than enthusiastic. Mulgrave wrote that his ship, "answered beyond my hopes as her superiority in sailing is hardly credible".[2] This "superiority" led to problems unless every ship in a squadron had been coppered; wooden ships, were, according to Graves, "unable to act with copper bottoms, for it is very difficult to keep a close line

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1. BL, I; 296-7, 5 Sep 1779; see also the Cabinet Minute of 6 Sep 1781 (SaP, IV, 63).

2. SaP, III, 34, 2 Jul 1779; see also other letters to Sandwich, SaP, IV, 49, 17 Aug 1781, Darby; 57, 3 Sep 1781, Mulgrave; 82, 13 Jan 1782, Kempenfelt.

with them and they are unable to keep up upon a pursuit".[1] In spite of these difficulties, copper proved its worth in more than one action. Rodney attributed much of his success in capturing six Spanish ships of the line off Gibraltar in 1780 to the copper sheathing of his ships, and de Grasse excused his lack of success in the West Indies against Hood by his relative lack of manoeuverability.[2]

While the introduction of copper was an enormous advantage at sea, the technical problems involved remained with the civil administration until long after the war. It is worth examining these developments in detail, for they particularly illustrate the professional attitudes of the Navy Board and the dockyards towards untried methods and towards problems of which they had no full understanding. The search for a sheathing which would keep the hull of a ship protected from the boring mollusc known as the teredo navalis or "worm" had been continuing for years.[3] The sheathing used up to this time was thin plank laid on a coating of tar and hair, but this covering was itself very susceptible to

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1. SaP, IV, 174, 4 Jul 1781; also BL, I, 62-3, 24 Jun 1780, Young to Middleton.

2. Mackesy, p.322; G, V, 346, Jan 1782.

3. See Ehrman, p.17; Maurer Maurer, "Copper Bottoms for the Royal Navy", Military Affairs, XIV, 1950, pp.57-61; J.R. Harris, The Copper King, (Liverpool, 1964), p.45, and, "Copper and Shipping in the Eighteenth Century", Economic History Review, XIX, 3, 1966, pp. 551-2; G. Rees, "Copper Sheathing, An Example of Technological Diffusion in the English Merchant Fleet", Journal of Transport History, I, 1971, pp. 85-6.

to the worm. The importance of finding an efficient alternative increased as the worm was brought home from tropical waters, and lodged in wood and water in the Medway, particularly at Sheerness, and to a lesser extent at Portsmouth. First experiments with copper were made at the end of the Seven Years War, when the frigate Alarm was covered with copper and was sent on a two-year voyage to the West Indies. Although the material was shown to be particularly successful in keeping the hull clean, the problem of corrosion by the action of the copper on the iron bolts which secured the main frame and the planking, seemed insoluble, and this discouraged further developments.[1]

Although desultory experiments continued, little progress was made in the first years of Sandwich's administration; but by 1775 the Navy Board began to show renewed interest. There is no firm evidence to account for this new enthusiasm, but the apparent inability of the contractors to supply enough sheathing board may have induced the Commissioners to turn elsewhere.[2] It is more probable that the arrival of the Hawke sloop, coppered, from India

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1. Corrosion was caused by electrolytic or galvanic action, which was not fully understood until well into this century. Some more ships were coppered in the 1760's (NMM, ADM B/174, 6, 8 Mar 1764; B/178, 3 Oct 1766; B/181, 15, 29 Jul 1768; PRO, ADM I/238, 5 Feb 1765, Burnaby to the Admiralty). See also A.L. Cross, "On Coppering Ships' Bottoms", American Historical Review, XXXIII, 1927-8, pp. 79-81.

2. NMM, CHA/M/3, 22 Ap 1771; PRO, ADM 7/659, 16, 16 May 1771; 7/660, fo. 67; PRO, ADM 95/95, 1 Nov 1775.

after a five-year cruise gave some impetus, for it showed that protection against corrosion was possible. Those bolt heads which had been covered with lead were "still sound and whole", although those which were not were "almost eat in two by the effects of the copper".[1] In the next two years a number of small ships were sent off on voyages with copper bottoms with "compositions" to protect the iron bolts from corrosion.[2] By the end of 1776 methods had been developed which were to form the basis of those which were adopted throughout the war. The Pegasus sloop and the Ariadne (20), for example, were ordered to be coppered once they had been proved to be "tight". The bottom was then painted with a mixture of white lead and linseed oil, on which the copper plates were to be fixed with nails made of an alloy which included copper; this came to be known as "mixed" or "compound" metal. The same material was used to make the braces and pintles. The false keel was to be fixed to the main keel with copper staples with a thin sheet of lead between them.[3]

However, the problem of corroded bolts was still not solved, and the Admiralty decided to make an experiment with pure

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1. PRO, ADM 7/662, fos. 21-22.

2. PRO, ADM 95/95, 23 Oct, 8 Nov 1775, 22 Jan, 2 Feb, 21 Mar, 16 May 1776. By the end of 1776, one 32 gun ship, one 24, four 20's and a sloop had been coppered (NMM, ADM B/193, 12 Dec 1776).

3. PRO, ADM 95/95, 10 Dec 1776. Braces and pintles were the hinges by which the rudder was fixed to the hull. They were first made of the mixed metal in June (ibid, 11 Jun 1776).

copper bolts. Several small ships were ordered to have all fittings below the loaded waterline made of copper.[1] The Navy Board had doubts about this measure at the start, for it thought that the relatively soft material would not allow the bolts to be driven home with sufficient firmness, nor, once fitted, would they be strong enough. The Admiralty therefore agreed to limit the use of these bolts to those ships building in the royal yards, and, in fact, this method of preventing corrosion was not developed for ships of any size.[2]

The next year, 1778, saw a large number of small ships being coppered, but the administration hesitated before issuing any general orders for applying the process to all ships. No solution to the protection of iron bolts had yet appeared, and copper bolts were trusted only for ships of fifth and sixth rates. However, those ships already coppered had been seen in action and had impressed the sea officers; pressure therefore increased on Sandwich to copper more ships.[3] According to Middleton twenty-five years later, it was at this point that he overcame Sandwich's reluctance to commit himself to coppering ships of the line, and that a visit to the King, with the Comptroller's encouragement,

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1. ibid, 3 Feb 1777.

2. NMM, ADM A/2711, 8 Jan 1777; ADM B/193, 11, 16 Jan 1777. See also Harris, Copper King, p.46. Copper bolts were still being used in 1778 (PRO, ADM 106/2597, 15 Jun 1778).

3. SaP, II, 160, 8 Sep; 168-9, 21 Sep 1778, Keppel to Sandwich.

finally persuaded the First Lord to issue orders to copper every ship in the fleet.[1] Middleton's reminiscences were prone to inaccuracy; in fact, in September 1778 the Admiralty asked the Navy Board if it was advisable to copper the ships of the line, and it received a very cautious reply, recommending instead two fifty gun ships, and asking for more time until the copper on the frigates was sufficiently tested.[2]

However, three months later a similar request for advice found the Navy Board with a more confident assessment of the chances of extending the process to ships of the line. The reason for this change of opinion was an apparently successful protection for iron bolts provided by the application of thick paper between the copper plates and the hull, which was to create an effective watertight barrier between the copper and the iron bolts.[3] This had been tried out on a 44 gun ship (probably the Jupiter), and the result made Middleton confident that this method would be the answer to the problem of corrosion.[4] In May the Admiralty issued a general order to copper all ships below 32 guns, and in July the

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1. BL, III, 16,Ap 1803; 29,May 1804.

2. NMM, ADM A/2731, 19 Sep 1778; ADM B/197, 29 Sep 1778.

3. NMM, ADM A/2735, 16 Jan 1779; ADM B/197, 27 Jan 1779. The method had been suggested by Roger Fisher, a Liverpool shipbuilder and naval contractor. Tarred paper had been used before under wooden sheathing (PRO, IND 9315, 24 Mar 1730).

4. NMM, ADM B/198, 23 Feb 1779.

same was to apply to all ships below 44 guns.[1] At the same time selected line of battleships were to be coppered, the first of which was ordered in February 1779.[2] From this point, the Navy Board issued a long series of orders in a constant search for improvement, for the idea of trying to protect the bolts by a barrier was to prove more than difficult to carry out.[3] Whether or not he knew it, Middleton was taking a risk, for he based his advice on experiments which were neither thorough, nor, as events were to prove, did he leave sufficient time for a true result to emerge; as one historian has noted, "should anything go wrong with a technical process adopted at this headlong pace, the results could be disastrous".[4]

Nevertheless, the methods evolved by trial and error before and during hostilities prevented the worst effects of corrosion from being felt until after the war. The insides of the copper plates were given three coats of white lead mixed with linseed oil. This mixture, the Board announced with confidence in its first Standing Order on the subject, "from repeated experiments...prevents

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1. SO(a), 848, 25 May; 871, 13 Jul 1779.

2. PRO, ADM 95/95, 20 Feb 1779. The ships were the Invincible (74) and the Russell (74).

3. Between 1779 and 1783 the Board issued 82 Standing Orders directly concerned with copper.

4. Harris, Copper and Shipping, p. 554.

the verdigrease from gathering and injuring the iron...~~(and)~~ but ...is of great use in preserving the copper itself."[1] However, a year later the Board gave a contractor named Dawson a monopoly of supplying the yards with his composition, which was held to be more effective.[2] The bottom of the ship was to be "dubbed as smooth as possible", and painted with tar.[3] Between these two barriers the paper was placed, which itself was dipped in oil of tar and Dawson's composition. The paper was a constant problem, and there were many changes in methods and materials during the war. "Strong brown paper" was changed for cartridge paper, and again for prepared paper supplied by Dawson; sometimes the hull of the ship was to be completely covered by paper, sometimes there was paper only underneath the edges of the plates, and sometimes there was a combination of these two methods.[4] Once the paper was thoroughly penetrated by the composition, the technique was for it to be applied while still wet, so that it adhered to both the hull and the plates.

Minor problems were solved as the war progressed. It was found that the copper plates by the bow were damaged when the anchor was weighed, and this was partially solved by rounding off

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1. SO(a), 828, 17 Mar 1779; also 793, 8 Jan; 805, 6 Feb; 820, 1 Mar; 888, 13 Aug 1779.
2. SO(a), 960, 18 Mar; 987, 12 Jun 1780.
3. SO(a), 1164, 11 May 1782.
4. SO(a), 915, 28 Oct 1779; 988, 13 Jun; 1042, 6 Dec 1780. The quality and weight of the paper was not specified until 1783 (SO(b), 120, 4 Jun 1783).

the ends of the anchor stocks and substituting thicker plates on the bows.[1] Eventually, all the plates were made thicker, and ships were fitted with 28 and 32 oz. (to the foot square) plates, instead of the thinner plates which the Board had hoped would suffice.[2] Several difficulties were met in providing efficient nails for the copper plates; countersunk nails came to replace nails "of the common sort" and were found to be "superior in every way".[3] Copper on the keels of the larger ships was found to be more easily damaged when heaving them in and out of dock, and eventually the old expedient of "filling" (or studding) the false keel full of copper nails was found to be a more efficient protection than sheet copper.[4]

There were also administrative problems to be solved with the distribution of materials to the yards, and the Navy Board tackled this with vigour and success. Most of the copper came from the newly-discovered resources in North Wales which were being exploited by Thomas Williams. The Board used only one

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1. SO(a), 975, 16 May 1780. The Board blamed the carelessness of captains (NMM, ADM B/198, 1 Feb 1779).

2. SO(b), 62, 22 Mar 1783; also ADM 174/18, 9 Mar, 3 Nov 1779.

3. SO(a), 900, 22 Sep 1779; ADM 174/117, 28 Jun 1782; NMM, POR/D/22, 2 Feb 1780; also PRO, ADM 106/2597, 20 Feb 1778, BL, I, 334, 14 Oct 1780, Kempenfelt to Middleton.

4. SO(a), 1016, 18 Aug 1780; also 835, 22 Ap 1779; SO(b), 7, 11 . . , 14, 23 Jan 1783.

contractor, William Forbes, who was the London agent for Williams.[1] Stocks were gradually built up, and the establishment for each yard was eventually set at forty tons of copper plate, thirty of which were to be lacquered with white lead.[2] The supply of paper from London was soon found to be inadequate, reaching Portsmouth in a damp and rotted condition, and a local manufacturer was found who supplied a cheaper and better product.[3] Regulations for the disposal of old copper and the accounts and returns were well organised.[4] There were shortages in early 1780, when the decision to go ahead without restraint was having its effect, and inadequate supplies, especially at Portsmouth, led to delays.[5] However, by the end of the year these difficulties were at an end.

The supply and manufacture of the braces and pintles, made of mixed metal by William Forbes at Deptford, continued to be a problem.[6] Since it was impossible to standardise the exact

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1. See Harris, Copper King, pp. 45-50, and A.H. Dodd, The Industrial Revolution in North Wales, (Cardiff, 1933), pp.155-9.

2. SO(a), 981, 30 May 1780. 3640 plates weighing over eleven tons were needed for the Victory (Burney's New Universal Dictionary of the Marine, (London, 1815), p.452; also Add MSS 41363, fo. 37.

3. NMM, POR/D/21, 7, 16 Mar 1779.

4. SO(a), 851, 1 Jun 1779; 1000, 6 Jul 1780; SO(b), 78, 14 Ap 1783.

5. NMM, POR/D/21, 22 Feb 1779; POR/D/22, 24 Dec 1779, 6, 20 May, 12 Dep 1780; PRO, ADM 174/18, 5 Aug 1780. Valuable supplies were gained from neutral ships (e.g., ibid, 20 Jun 1780).

6. PRO, ADM 174/17, 8 Jan 1777. The yards were issued with drills for the holes in the braces and pintles (106/2597, 23 Jan 1778).

shape of each ship's hull, a mould of each brace and pintle had to be made at the yard, which was then sent to Deptford. This task presented considerable technical difficulties, and Forbes complained of bad workmanship. A particular difficulty was that the moulds had to be made slightly smaller to allow for "moulding in sand", which left the metal slightly larger than the moulds.[1] The yard then hoped to have the manufactured pieces back before the ship was out of dock. Delays were perhaps inevitable, especially at Plymouth, but there were remarkably few.[2]

By the end of Sandwich's administration, satisfaction with copper and the method of sheathing was universal. The effort had been prodigious, and the First Lord mentioned the coppering of the fleet as being the first of his achievements in the defence of his administration in January 1782.[3] Eighty-two capital ships, fourteen of fifty guns, a hundred and fifteen frigates and a hundred and two sloops and cutters had been coppered to that time. In 1780 alone no less than forty-six ships of the line had been fitted with the new sheathing.[4] The early optimism

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1. SO(a), 1075, 7 May 1781; PRO, ADM 106/3472, 5 Ap 1782.

2. PRO, ADM 174/117, 4 Jan, 14 Mar 1780; NMM, POR/D/22, 20 May, 3 Sep 1779. The pieces were transported by land, which was more expensive, but quicker and more reliable.

3. G, V, 345-6, Jan 1782.

4. ibid; Abstracts of Progress, 5, part 1.

of the Comptroller had not yet been disappointed. Although his claim that coppering the fleet would more than double their effective numbers was subject to his usual exaggeration,[1] there had been a real increase in efficiency at sea. More important, it lightened the burden of refitting on the yards. Not long before he left office, Sandwich wrote to Hood saying, "Copper bottoms need fear nothing".[2]

However, at the end of 1782, doubts about the effectiveness of the protection of iron bolts from the corrosive effects of the copper were raised very forcibly. The chief reason was the violent storm of September 1782 off the Banks of Newfoundland, when the captured French ships, the Ville de Paris (110) and the Glorieux (74), and the British Ramillies (74) and Centaur (74) all foundered with the loss of over 3,500 lives.[3] It was thought that the chief cause of the tragedy was corroded bolts. In addition, confidence had also been shaken by reports from the West Indies that the copper's effectiveness against the worm was not all that had been claimed for it.[4] The Admiralty

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1. SaP, III, 175 (undated), Middleton to Sandwich.

2. SaP, IV, 201, 9 Nov 1781.

3. See K. Breen, "The Foundering of H.M.S. Ramillies", Mariner's Mirror, 56, May 1970, p.192; Albion, p.313; Harris, Copper King, pp. 46-7; Copper and Shipping, p.554.

4. PRO, ADM 106/3472, 5 Ap 1782.

was undoubtedly thinking of abandoning copper altogether, and was more than irritated when it found that the Navy Board had ordered the ships to be laid up in Ordinary with copper on their bottoms.[1]

The reaction of the Navy Board to the questioning of their methods was obstinate and high-handed, and it obviously regarded any doubts as a slight upon its professional competence. In a strongly-worded letter of 5th March 1783 the Commissioners dismissed any suggestion that the methods used to protect the bolts were anything less than satisfactory. The coppering of the fleet was, "self-evident certainty of its security", and, they continued: "The effects of lacquered copper on prepared paper has been so well ascertained, and its superiority and security beyond any other kind of sheathing"; if there was any evidence of corroded bolts, then the bolts were corroded before the copper was put on. They defended their failure to consult the senior board about putting the ships in Ordinary on copper as being not worthy of discussion, and the only measure of doubt that they allowed was that they considered that, if possible, coppered ships should be inspected before they went off on long voyages, "not that we apprehend any danger from omitting it".[2] Yet the evidence that they presented was

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1. NMM, ADM BP/4, 4 Feb 1783.

2. NMM, ADM BP/4, 5 Mar 1783. The Board's reaction to a suggestion for improvement by Samuel Bentham in 1781 was similar: the sheathing was, "so secure and superior to that proposed by him that we cannot advise any alteration". (PRO, ADM 106/2209, 28 Ap 1781).

unimpressive, for although they claimed that all reports on the sheathing had come to them, and had been fully digested, it is clear that the reports throughout the war had not been concerned with copper bolts, but only with the external appearance of the copper.[1]

The professional board was, however, forced to make an investigation, and reports and opinions collected over the next few months were damning. A week after the letter of 5th March the Board forwarded the opinions of the Resident Commissioners on whether it would be safe to send ships to sea which had been coppered for some time. Their views were expressed by Martin: "I still conceive that we are not sufficiently acquainted with the effects of coppering to run the hazard of the greater part of our line of battleships being materially injured by it". The Board had no patience with such hesitation, and told the Admiralty, that, "on their opinion we lay no great stress".[2] In the next few months, however, the Board was forced to change its tune, and a thorough inspection of the Edgar (74), Fortitude (74), and Alexander (74), witnessed by members of the Board, showed irrefutably that the iron bolts of all three ships were in a dangerous condition.[3] By July the Board asked the Admiralty

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1. A report on the Unicorn (20) of 11 Oct 1779 was the last to mention corroded bolts (NMM, POR/D/22). Subsequent reports were concerned with weed and the braces and pintles.
2. NMM, ADM BP/4, 11 Mar 1783.
3. NMM, POR/D/23, 24 Ap 1783; PRO, ADM 174/19, 1 May 1783; Add MSS 41364, 6 May 1783, Howe to Martin.

whether it would be best to stop coppering all ships except those which were ordered on service, at least until the detailed reports which had been ordered from the dockyard officers had been prepared and digested, to which the Admiralty agreed.[1]

Although the Navy Board did not present their full report to the Admiralty until November, it must have been convinced of the dangers in August, for it wrote in an order to the yards that, "there is no possibility of guarding the iron against the influence of the salt water".[2] Nevertheless, the Commissioners were convinced to the last that any corrosion which was the result of water penetrating the copper and paper was due to bad workmanship, and that a fundamental improvement in technique was not needed.[3] Apart from the fact that the protection was very fragile, and the copper sheathing was easily torn off, this assumption was partially correct, for the effectiveness of the protection varied from ship to ship. Laforey, for instance, wrote in 1781 from Antigua that the Russell (74), one of the first ships of the line to be covered, had had none of her iron work injured by the sheathing.[4] Yet the fleet had to be coppered quickly; the result of this was that the

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1. NMM, A/2789, 3 Jul 1783; SO(b), 141, 7 Jul 1783.

2. SO(b), 178, 13 Aug 1783.

3. There was a last-minute experiment in covering the bolts themselves with a lacquer of blackwad and linseed oil (SO(b), 91, 7 May; 112, 23 May 1783).

4. BL, II, 126, 28 Nov 1781, Laforey to Middleton.

quality of workmanship tended to be sacrificed to speed.

Protection would be complete, reported the Deptford officers in 1783, if the,

> bolts be well drawn and well driven, and their heads when spread in driving, trimmed with a cold chisel, and driven a quarter inch within the surface of the plank, and that be filled up with paste, and covered with tarred canvas, before the bottom is payed with composition; and if the coppered sheets be well lacquered, and time be given to harden the lacquer, and the bottom well payed with composition, no bad effect can arise from the copper. 1

This was intricate and time-consuming work, and the yards were under heavy pressure to get ships out of dock. Too many things were dependent upon time and adequate supervision. One particular pitfall was that the holes punched in the copper plates for the nails could come directly over the head of a bolt, and easily let the water in. There were difficulties in lacquering the copper sheets in sufficient time before the lacquer hardened, while the expectations of the Board in the adhesive qualities of the composition in which the paper was soaked were disappointed.[2] Perhaps most important of all, there was the difficulty of ensuring that the caulking behind the copper plates was of the highest order, for the maintenance of the timber and

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1. NMM, ADM BP/4, 5 Nov 1783.

2. SO(b), 83, 28 Ap 1783. Resin was mixed with tar at a late date in an attempt to find a more effective adhesive (PRO, ADM 174/19, 16 May; 174/118, 25 May 1783).

caulking behind copper sheathing was rendered more difficult.[1]

The other major weakness was the lack of protection which the copper provided against the worm. The Master Shipwright at Jamaica wrote in early 1782 that, "great injury" had been done by the worm to the Sandwich (90), and in the next year he reported that most of the fleet under Hood, and several of Rowley's division, would, "not be able to stay here longer than six months before they prove leaky".[2] Hood reported to Middleton at the same time that the Barfleur (80) had had her stern post and rudder eaten by the worm, "in a manner not to be conceived ...I dread what may happen to many of the king's ships, if we have not peace to occasion their being called home to have their bottoms inspected".[3] The worm had penetrated where the copper sheathing had been torn away, but the most constant weakness was that the yards had not been specifically ordered to put copper and paper behind the braces and pintles. This again was a difficult and time-consuming task, and, in spite of the earlier warnings, the order remedying this weakness was not issued to the yards until May 1783 - too late to be of any use during the war.[4] The lesson was not appreciated in time; copper sheathing,

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1. SO(a), 1085, 6 Aug 1781; 1113, 19 Jan 1782; ADM 174/17, 8 Jan 1777.

2. PRO, ADM 106/3472, 5 Ap 1782; ADM 174/19, 25 Ap 1783.

3. BL, I, 253-4, 28 Feb 1783.

4. SO(b), 102, 16 May 1783.

like the links of a chain, had to be completely effective to be effective at all.

In spite of these difficulties, the Navy Board found strong support from the yard officers in the report of November 1783 for the retention of copper, and any idea that the Admiralty may have entertained for keeping the ships in Ordinary without sheathing at all was considered highly impractical. "In three years at this port", wrote the Sheerness officers, "the worm would make a single bottom unfit to receive copper on an emergency".[1] Fortunately, the disquiet over the copper had stimulated the development of a new type of bolt. Keir's compound metal bolt of copper, zinc and iron, which had been under development since 1779, was finally rejected in December 1783 in favour of a copper and zinc bolt hardened by mechanical means. This bolt had been developed independently by William Forbes, and two men, Westwood and Collins, under the direction of Thomas Williams, quickly following an advance in the iron industry which perfected a technique involving grooved rollers.[2] This method finally provided a satisfactory bolt, and the officers replied in the affirmative to the Board's question, "whether in order to remove

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1. NMM, ADM BP/4, 5 Nov 1783.

2. See Harris, Copper and Shipping, pp. 555-560. The extra cost of the bolts was considerable. The Board estimated they would cost £2272.10. 0 for a hundred gun ship, and £1559 for a seventy-four, more than iron bolts. Martin noted later that the Canada (74) used 17 tons at the price of £135 a ton, which came to £2295 (NMM, ADM BP/4, 5 Nov 1783; Add MSS 41363, fo.40).

every objection that can arise from ignorance or prejudice against copper sheathing...it may not be the most prudent and economical in the end to use compound metal bolts".[1]

The report of November 1783 effectively stopped any controversy between the two boards, and a further survey in 1786 on the Goliath (74) and Crown (74) confirmed that even on recently coppered ships iron bolts had corroded dangerously.[2] The final order to change all ships to the new bolts came at the same time when the Admiralty ordered all guardships to be copper fastened, "as fast as the docks can be spared".[3] However, the public debate still continued. In the Commons, MacBride directed a question at Middleton, asking,

> if it was intended to persevere in the absurd system of suffering the ships to remain in their coppered bottoms during the whole of the peace?...The consequence would be, that the instant ships which had long lain by were sent to sea, their bottoms would drop out, and thousands of brave seamen would perish in the ocean. 4

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1. ibid. The Admiralty was assured that the new bolts would last "for more than a century"!

2. NMM, ADM BP/6b, 13 Jul 1786. Of the 63 bolts sampled from the Crown, (64, built at Blackwall in 1782), 39 were only a little corroded, but 24 were, "much corroded at the head", and many "drove slack".

3. NMM, ADM A/2815, 11 Aug 1786.

4. Parliamentary Register, XIX, 1786, p.250-1. MacBride had long held ideas on sheathing; see PRO, ADM 95/95, 1 Mar 1779. Public and professional confidence in the new material was shaken, and well-informed criticism continued until 1786. See, Strictures upon Naval Departments, with a recommendation to abolish the Coppering of the Ship's in the state of Ordinary, by a sailor, (London, 1785); also Harris, Copper and Shipping, p.565; G. Rees, p.87.

The history of the introduction of copper sheathing illustrates the strengths and weaknesses of the civil administration during this war. Vigorous measures saw that the innovation was accepted and that formidable administrative problems were solved. At the same time, technical reports on corrosion were neglected once the measure had been adopted. Prolific resources, which the French were unable to match, enabled the supplies of copper to the yards to be built up quickly. The coppering of the fleet was a formidable achievement, and, although twenty-five of the line had to be repaired during the war, less maintenance was needed and this took a burden off the dockyards. Yet it must be said that the measure was hastily and overconfidently adopted, and that the time and development devoted to the measure was as inadequate as the obstinacy of the Navy Board after the war. An observation of a historian writing of naval administration in the previous century holds true of this period; "this type of scientific investigation was more often the extension of traditional practice to theory than the application of theory to practice, and often significant of the development of organisation around a problem rather than of an attack upon the problem itself".[1] It needed an energetic capitalist, who foresaw a large market for his product disappearing, to provide a bolt which was as hard as iron yet free from corrosion.

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1. Ehrman, p.17.

It was largely due to Middleton's obstinacy that the Navy Board's innovation of 1779 became the orthodoxy of 1783. While the Board accepted that the braces and pintles and the nails securing the copper needed to be made of an alloy, it was reluctant to accept that bolts of the same material would be needed. It was not until a satisfactory process and material were developed that ships were sufficiently safe; MacBride's fears might well have been realised had the fleet remained with iron bolts protected only by paper. "England's technological victory"[1] may have had its effect at sea during the war, but the real technological victory was not won until after the war had been fought.

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1. Mackesy, p.285.

iii) The Servicing of the Fleet.

An important part of dockyard equipment was the large number of vessels needed for servicing and supplying the fleet, and for the numerous other tasks which had to be undertaken afloat. The provision of sufficient and suitable craft tended to be neglected by the Navy Board, which concerned for economy, sought always to limit the growth of the establishment of each yard. This led to problems at the main refitting yards at Portsmouth and Plymouth. To those on the spot, this false economy was made evident by the delays which occurred, and there was an almost continuous badgering of the Board by the Commissioners resident at the western yards for the provision of more and better hulks, sailing and small craft.

The hulls of old warships, known as hulks, were an important part of dockyard equipment, and were put to various uses. The foreshore at Sheerness was almost entirely composed of hulks pulled up onto the shore, while the Navy Board proposed to use one as a floating battery at Plymouth during the emergency of 1779.[1] However, their most important role was in accommodating the men and stores of ships about to be

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1. NMM, ADM B/199, 28 Jun 1779.

docked. They provided space for the ship's stores which had to be taken out to lighten her for docking, and at the same time the position of the hulks away from the shore discouraged the ship's crew from desertion. In addition, at each port there was a "sheer" hulk for the masting and unmasting of each ship.[1] These, according to the Navy Board, were a luxury, for it informed Martin that masting and unmasting was, "so simple and so much in practice on every station but home service", that ships could be, "dismasted sooner by their own people at Spithead than by a hulk". The yard, according to the Board, needed only to provide spars and lashing.[2] Although technically correct, this attitude presumed too much upon the enthusiasm of the sea officers and seamen, and in fact the sheer hulks were essential for speedy handling of spars.

Complaints from the western yards over insufficient numbers of ships provided as hulks were regular throughout the war. In 1777 the Portsmouth officers complained that the five hulks in the harbour were insufficient for the expected

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1. "The mast of this vessel is extremely high...strengthened by shrouds and stays, in order to secure the sheers, which serve, as the arm of a crane, to hoist out or in the masts of any ship lying alongside" (Falconer, p.158).

2. NMM, POR/G/1, 16 Nov 1781; also PRO, ADM 174/117, 1 May 1781. In emergencies, ships were dismasted and remasted in Cawsand Bay at Plymouth Sound under the direction of the Master Attendants, who earned Ourry's admiration for their skill (e.g. ADM 174/116, 3 Jan 1779).

mobilisation, and that two large and two small ones were needed in addition.[1] Similar requests were sent to the Board in regular succession, but although ships were eventually provided, the need in 1778 to put every available ship to sea put paid to any improvement.[2] The shortage of hulks had an important effect on refitting; in 1780 Ourry wrote from Plymouth to the Board to say that,

> the reason we don't dock in this spring so many ships as I could wish and you may expect is that we have not hulks sufficient for the number of ships that are clearing for the docks to put their stores on having but only three hulks for that purpose. 3

At the end of the war there were still only three and Ourry wanted another two.[4]

Another result of the lack of concern over the hulks was that they were indifferently maintained, although they were supposed to be given "Triennial Trimmings" as with serviceable ships. In 1777 Ourry reported that the sheer hulk at Plymouth

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1. NMM, POR/D/21, 9 Oct 1777, 9 Sep 1778; POR/F/17, 3 Aug 1780; PRO, ADM 174/116, 28 Sep 1777.

2. The Blenheim (90), Royal William (84), Dragon (74), Hercules (74), Warspight (74), Essex (64), Modeste (64) and Firm (60) were all hulks which were patched up and sent to sea for "summer service only" between 1778 and 1780 (see PRO, ADM 95/95).

3. PRO, ADM 174/117, 15 Jan 1780.

4. ibid, 25 Oct 1782.

had been thirteen years "off the ground" and that the rigging had been "overhead" since the ship had been a hulk.[1] This lack of care caught the yards at the worst moment in the war. In 1778 Hood complained that the condition of the hulks was "very wretched", and that the need to lighten them for caulking kept the riggers occupied to the extent that it hindered refitting. The whole Ordinary, he reported, "have been employed for some time past in keeping them above water", and he considered that not one of the hulks was, "fit to carry a ship to".[2] To remedy this situation valuable yard and dock space was taken up during 1778 and 1779 when neither could be afforded.

The next type of vessel which was used by the yards was the sailing lighters, hoys and sloops which acted as tenders to the fleets at Torbay, Spithead and Plymouth Sound. The two western yards, especially Portsmouth, experienced difficulties at an early stage in the war through unsuitable and an inadequate number of craft. According to a list made in 1774, the average age of the twenty-five sailing craft belonging to

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1. PRO, ADM 174/116, 16 May 1777, ADM 95/95, 21 May 1777; also ADM 174/17, 26 May 1778.

2. NMM, POR/F/17, 9 Jul 1778; also POR/D/22, 13 Oct 1779; POR/D/23, 2 Oct 1782.

the yards was thirty, and the oldest was sixty-eight.[1] Of the seven hoys and lighters at Portsmouth, at least one was useless.[2] The first difficulties were experienced in early 1776 during the embarkation of troops for America. Gambier pointed out that, compared to the time of the Falkland Islands crisis, he was lacking timber hoys (which had been sold in 1773) and four hired sloops.[3] Nothing further was done until Hood arrived at Portsmouth, when he soon wrote that the craft, "were by no means equal to the daily demand".[4] In spite of his insistence on the need for four extra hired sloops of forty to fifty tons each, the Board was reluctant to allow more than two to be hired, although under pressure from the new Commissioner, it finally allowed three.[5]

This additional number was still barely adequate, yet Hood found that in the autumn of 1779 the Board wished to discharge some of the craft that had been hired. He put

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1. British Museum, King's MSS 44, fos.55-6. This was apart from the Commissioners' yachts, of which there were frequent minor complaints.

2. William Nicholson, Master Attendant at Portsmouth, reported that the Forrester hoy (built in 1748), on the way to Southampton, "sailed and steered so badly that the Buoyboat was obliged to tow her every foot of the way" (NMM, POR/D/22, 14 Oct 1779.

3. NMM, POR/F/16, 9, 23 May, 1, 2 Nov 1776. The Board ordered the hiring of four small tenders for the reception of pressed men, but refused to implement Gambier's idea of using the Academy yacht (POR/G/1, 2 Nov 1776).

4. NMM, POR/F/16, 10 Mar 1778.

5. ibid, 18, 22, 23, 26 Mar 1778; POR/G/1, 24 Mar 1778.

across his view to the Board with firmness:

> It is my duty to point out what from experience appears necessary for giving ~~greater~~ dispatch to the King's service at this time, and for the Board to determine how far it will put confidence in my representations...full employment will be found for every vessel we now have...without giving delay to the sailing of the ships'. 1

Hood won his point, and managed to lower the price of hiring by more than a third by engaging the craft for a longer period of time.[2] Yet the number of sailing craft was still found to be inadequate; early in 1780 Hood informed the Board that, "daily experience proving that the service of this port cannot be properly carried on", and the officers wrote to say that there was still much delay in supplying the fleet with stores, "and we plainly see that the more ships are coppered, the more vessels will be wanted for the above service". The officers' estimate was for twelve hired sloops; the Board allowed eight. On the peace all the hired vessels were discharged.[3]

Apart from the main task of supplying the fleet, the sailing craft had a variety of uses. Sweeping for lost anchors kept them in employment when there was no urgent business, while

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1. NMM, POR/F/17, 10 Oct 1779.

2. ibid, 2 Nov 1779. Hood hired the sloops at eighteen pounds a calendar month instead of at one guinea a day.

3. NMM, POR/D/22, 12 Jan 1780; POR/F/17, 25 Ap 1780, POR/F/18, 27 Jan 1783: After the war, the Board fixed a peacetime establishment for Portsmouth of three sailing craft totalling 272 tons (SO(b), 188, 20 Aug 1783).

some had specialised uses, such as the buoyboats, used for maintaining the buoys under the care of the Master Attendant. At Sheerness, one boat was continually employed in bringing water from Chatham to the yard. It was important that at least one of the yard boats should be able to cope with bad weather, especially at Plymouth, where the Sound was particularly exposed. Ourry observed in 1777, when the Lizard (28) had gone ashore, that with a good sailing lighter, "such as they have at Chatham, we could have worked out with the tide...and have laid an anchor to windward for the Lizard". He added in disgust, "the present old sailing lump is not fit for that service she was intended for; you may as well turn out with the sheer hulk as with her".[1] After his complaint, the Board contracted for a new lighter to be built in the Thames, but this was not delivered until three years later, by which time there were further mishaps in which the yard was unable to assist.[2]

The last category of dockyard craft were the lighters, launches and longboats which were used within the harbours of

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1. PRO, ADM 174/116, 21 Feb 1777.

2. ibid, 28 Feb, 13, 15 Ap 1777, 20 Jan 1778, 14 Feb 1779; ADM 174/18, 7 Aug 1780. After the disastrous fire on the Torbay (74), pumps were held in readiness for boats to go to the assistance of ships in the harbour (174/116, 25 Sep 1778).

Portsmouth and Plymouth. "Common" lighters were employed in taking off old stores from ships about to be refitted. At Portsmouth there were only eight, and in 1778 the officers reported that since there were eighteen ships being fitted and refitted in the harbour, there were many complaints of delays from the sea officers.[1] At Plymouth the Masters Attendant complained of the want of, "handy luggage craft to carry on the port duty".[2] These difficulties could be solved by hiring local small craft on a day-to-day basis, but this needed Navy Board approval.[3] No such solution could be found for the shortage of mooring lighters, which were needed to maintain the moorings of the ships in the harbour. Again there were complaints from both the western yards. The Portsmouth officers complained that since the moorings were now made of chain, and not cable, the difficulty of raising moorings which were sunk - something which frequently happened because there were only three mooring lighters - was considerably increased. What had formerly taken the efforts of a few men in a common lighter, now needed forty or fifty men for a whole day in a mooring lighter.[4]

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1. NMM, POR/D/21, 18 Mar 1778. Nine were established after the war, totalling 408 tons (SO(b), 188, 20 Aug 1783).

2. PRO, 174/18, 10 Mar 1780.

3. e.g. NMM, POR/F/16, 27 Nov, 23 Dec 1776.

4. NMM, POR/D/21, 18 Mar 1778; also PRO, ADM 174/18, 14 Aug 1779. Six mooring lighters were established after the war, totalling 572 tons (SO(b), 188, 20 Aug 1783).

Finally there were a great number of launches and oared boats. The number of these craft appeared to have been completely unestablished until the Board issued a detailed order after the war. At Plymouth, for instance, the Commissioner was to have a pinnace, a cutter, a yawl and a wherry at his command to suit his need and the sea conditions. The Masters Attendant were to have a boat for their personal use, as well as direction over six launches and the buoyboat. Although Plymouth was allowed a total of forty-two boats by this order, the number maintained during the war was probably greater.[1] However, there were still complaints. At Portsmouth, there were only seven "transporting" launches for pulling boats around the harbour, while there were often, "four, five or six ships in motion at a time"; the officers asked for four more.[2] Ourry also complained about a lack of launches for warping ships in and out of the Hamoaze.[3] None of these complaints had any effect.

The lack of sufficient and efficient harbour craft undoubtedly led to delays.[4] Although complaints were to be

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1. SO(b), 163, 25 Jul 1783. This was apart from private boats. The Navy Board received a complaint of lack of room and inconvenience caused by the, "increase of inhabitants and a proportionable trade employing very little short of two hundred wherries mostly engaged in supplying the fleet with necessaries" (POR/G/1, 25 Aug 1780).

2. NMM, POR/D/21, 18 Mar 1778; also POR/D/23, 21 Nov 1782. Fifteen were allowed to Portsmouth after the war (SO(b), 188, 20 Aug 1783).

3. PRO, ADM 174/116, 14 Feb 1779; also ibid, 1 May 1778.

4. e.g. PRO, ADM 174/116, 9 Aug 1778.

expected during the course of a long war, the Navy Board was reluctant to meet the increasing demands of the yards. "We can only govern ourselves (by) what was ~~needed in previous years~~ thought sufficient in the last war", the Board replied to a request from Hood, "and we have experienced such neglect...that we...wish...(to)..keep it within as narrow bounds as possible".[1] Middleton, years later, referred to the yard officers' "extravagance" as "unbounded", yet the Board's distrust extended to the professional judgement of the Resident Commissioners. Nevertheless, the Board did increase the permanent establishment of craft after the war to sensible proportions.[2] Allowances should perhaps be made for exaggerated estimates from the yard officers, for they knew well the reluctance of the Board to grant their full demands. Regard for economy led to delay, and the same principle led to the hiring of extra vessels on a short-term basis, in the hope that they would soon be discharged; this proved to be expensive.[3] Yet if the Board appears to us as short-sighted and suspicious, it was perhaps too much to expect that the equipment and organisation which went to support the fleet should have been considered as anything but secondary to the fleet itself.

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1. NMM, POR/G/1, 12 Mar 1778.
2. BL, III, 20, Ap 1803. The establishment of 1783 allowed a total of 54 sailing lighters to all the yards, totalling 3036 tons (SO(b), 183-189, 20 Aug 1783).
3. There were other difficulties in hiring ships, for hired men could be difficult to control. Shuldham complained that the masters of tenders were, in general, "very idle and the service suffers much by their neglect and drunken behaviour" (PRO, ADM 174/116, 16 May 1777; 174/18, 22 May 1777).

iv) Yard Facilities and Problems Afloat.

In spite of considerable efforts by Sandwich and his administration, the day-to-day problems of the yards throughout the war were considerably increased by inadequate shore facilities; in particular there was a shortage of space and storage, too few docks of sufficient depth, while there was a constant struggle to maintain the existing facilities in a serviceable condition.[1] That the yards were inadequately equipped was realised after the previous war, and in 1764 an ambitious plan to reconstruct and extend the western yards, estimated to cost £731,410, was put in hand. Progress was slow. Extra space was not easily obtainable, and time and money had to be spent in reclaiming marshy ground. At Plymouth there was the further difficulty of a hillside of solid rock. Sandwich, however, speeded up the improvements; the Visitations between 1771 and 1778 were at their most effective in the

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1. The expansion of the buildings and facilities of the yards during this period has been examined by Haas, Earliest Visitations, pp. 210-214; Williams, pp. 338-356, 359-372; Usher, pp.357-382; Kitson, 1947, pp. 261-265; Coad, pp. 147-156; R. Sutherland Horne, Her Majesty's Dockyard at Portsmouth; A Chronology, (Portsmouth, 1965), pp. 62-77; F.N.G. Thomas, "Portsmouth and Gosport", (unpub. M.Sc. thesis, London, 1961), pp. 37-42; A.E. Stephens, "Plymouth Dock, A Survey of the development of the Royal Dockyard in Hamoaze during the sailing ship era", (unpub. Ph.D. thesis, London, 1940), pp. 100-119, 124-128, 130-135, 141-145; H. Rees, "The Medway Towns", (unpub. Ph.D. thesis, London, 1955), pp. 92-99, 116-118. For general surveys see Victoria County History, Kent,II, 336-388; Hampshire, V, 382, 393-4.

inspection of the works and buildings of the yards. Nevertheless, even after these improvements, the facilities of the yards were far from ideal.

The first problem was inadequate storage space. The 1771 Visitation revealed that there was not even enough storage for one year's supply of timber, and that there was little room for the rigging of large ships. Many of the existing facilities were in disrepair. Chatham and Woolwich were the worst in this respect, and the latter suffered from an inefficient siting of buildings. The same was broadly true of the western yards, and particularly of Plymouth.[1] Portsmouth had suffered from an extensive fire in 1770 which had destroyed the laying house, all the ropehouses and the long storehouse. Sandwich set to work with vigour. Working along the lines set out by the 1764 plan, he concentrated on setting the western yards to rights. Only minor repairs were carried out at Chatham; a major plan here, "tho' much needed", was felt to be too expensive.[2] The effort was concentrated on Portsmouth, and the damage of the 1770 fire was repaired within a year. The mast ponds at Plymouth and Woolwich, which had been allowed to fill with mud, were cleared, while the repair of the mast pond at Deptford was completed.

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1. NMM, ADM B/185, 2 Jul, 21 Aug 1771.

2. PRO, ADM 7/661, fo.2; 7/662, fos. 78-9.

Timber sheds to store the increased amount of timber coming into the yards were completed by 1774, and in spite of the fire in Portsmouth ropehouse in late 1776, the buildings of the western yards were in good order by the outbreak of the war.[1]

Improvements continued to be made throughout the war,[2] but in spite of attention by the Board, maintenance suffered and the eastern yards in particular were found wanting by the Visitation of 1785. At Sheerness, for instance, the Navy Board found that, "almost the whole of the buildings in this yard...are exceedingly out of repair and very much confined", and there was no room for the rigging of large ships, all of which had to go to Chatham. Serious faults were found at Plymouth in the same year; inspecting the office belonging to the Ropeyard, the Board were, "sorry to find the foundation to have given way and the apartments very damp which is a general complaint against

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1. For details of the fire of 1776 and the subsequent trial of John Aitken, or Jack the Painter, see Sutherland Horne, pp. 74-76. The building of the Marine Barracks at Plymouth took up much of the Commissioner and officers' time (PRO, ADM 174/116, 28 Nov 1778, 2, 16 Feb 1779).

2. The most important were new offices for the Clerks of Cheque and Survey at Woolwich, and new storehouses at Chatham and Portsmouth (NMM, ADM B/195, 2 Jul 1777; ADM A/2717, 5 Jul 1777; ADM A/2748, 7, 16 Feb 1780). See also ADM A/2721, 6 Nov 1777; A/2748, 14 Feb 1780; POR/D/21, 20 Mar 1778; POR/D/23, 13 Jun 1782; PRO, ADM 174/17, 30 Oct 1777.

the new buildings".[1]

Large building projects, and most large repairs, were undertaken by contractors, controlled through the yard officers by the Navy Board. The smallest piece of maintenance had to be approved by the Board, for there was a general distrust of the competence of the officers in the building line. There is also little doubt that the officers put the claims of their own houses before the facilities of the yard in their applications to the Board.[2] The main suspicion, however, was that the work fell short of the contract standard, with or without the officers' knowledge. As a check, the Board employed an independent surveyor, John Marquand.[3] An informal Visitation of 1786 to Plymouth showed that the Board's suspicions were well founded; at both the western yards the contractors, Templar and Parlby, had a monopoly of large building projects. The Board found that since 1756 they had undertaken forty-five different projects at Plymouth, and that many of the later contracts had been overpaid and indifferently executed". The Board's report, from which the two

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1. PRO, ADM 106/3222, Navy Board Minutes of 1785 Visitation. During and after the war, a considerable amount of space was saved by demolishing a very large number of sheds, mostly unestablished, which had been built through the years.

2. 30 of the 90 warrants concerned with building issued by the Navy Board between 1774 and 1779 were to repair officers' houses (PRO, ADM 95/95). Cleversal alleged that joiners spent much of their time employed on this work (NMM, CHA/X/2, 9 Mar 1785); the Navy Board suspected abuse, and ordered that any work on officers' houses costing over five pounds was to be submitted to the Board for approval (SO(a), 1194, 13 Sep 1782).

3. See above, pp. 96-99 ; also Webb, pp.212-219.

Surveyors demurred, was that the contracts for the Ropeyard office and wharves in question were, "somewhat incautiously drawn, so as to have left too much latitude to the contractor". Later the contractors were cleared of fraud after the opinion of independent experts had been taken, but the issue was confused by the rivalry of Middleton and Howe.[1]

However, it was the "works" - the docks, slips and wharves - which were to be of the most importance during hostilities. The main addition which Sandwich put in hand before the war was nine small slips for building frigates. Two each were built at Portsmouth, Plymouth, Chatham and Deptford, and one at Sheerness.[2] Little more than minor repairs were carried out at Chatham, where there were five single docks and one double, and five building slips. Essential repairs were also carried out at the smaller eastern yards. The double dock at Deptford, long disused, was repaired and a wharf, crane and new jetty heads were built at Sheerness.[3] Portsmouth, however, was much improved; here there were four docks, only one of which in 1771 was able to take a first rate, although three slips had been built as part of the building programme of the 1760's. In spite of the trouble of

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1. NMM, ADM BP/6b, 8 Jun, 18 Jul 1786; BP/7, 24 Ap, 10, 20 Aug 1787.

2. PRO, ADM 7/662, fo. 76.

3. ibid, fos. 18-19.

the subsidence of the Portsmouth basin, by the summer of 1775 the rebuilding of one of the docks with stone, the conversion of a slip to a dock, the basin, reservoir and drains, the gates of the north dock and the jetty head were completed, and work on the wharves of the camber was well advanced.[1] Although the work at Plymouth went more slowly, by 1773 the boundary wall and wharf were finished, the upper part of the double dock had been deepened and new gates hung. By the next year, 1200 feet of stone wharf had been finished.[2]

Although this building effort did not eliminate difficulties, these improvements came just in time for the war.[3] The work went on throughout hostilities, although at a slower pace; the main effort was expended on the docks, which, with constant use, always needed repair. A few minor improvements were made; more sawpits were provided, and the reclamation of the land to the north of the yard at Portsmouth continued.[4]

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1. PRO, ADM 7/660, fos. 5-6; 7/662, fo. 30.

2. ibid, fos. 29-30; 7/661, fos. 39-41, 46-48.

3. There are many yard plans for this period. For the pre-war years see British Museum, Kings MSS 44, (1774); NMM, LAD II plans nos. 34-6, 38-9, 41-3, 47, 63, 66 and PRO, ADM 140/8-9. The models made in the yards in 1774 for the King, now in the NMM and Science Museum, Kensington, are of particular interest. See also NMM, ADM Y series for Portsmouth, Sheerness and Woolwich, and for developments in the 1780's, see NMM, MS66/086.

4. PRO, ADM 95/95, 3, 19 Aug 1778, 16 Nov 1779; NMM, POR/D/22, 17 Feb 1780; A/2749, 8 Mar 1780. Between 1774 and 1779, 170 warrants were issued concerning minor alterations and repairs; two-thirds of them were to Portsmouth and Plymouth (PRO, ADM 95/95).

Sandwich was pleased with the results; in 1775 he considered that when the western yards were finally completed they would be "superior to anything in Europe".[1] Yet this boast overlooked the practical difficulties. According to Gregson, professional opinion considered that another large dock at Plymouth was essential. Kempenfelt felt that more might have been spent on new docks than building slips at the western yards,[2] and, in fact, an examination of the practical difficulties shows that there was little room for complacency.

The main problem was the small size of the existing docks. Due to the great drafts of the largest ships, the yards were dependent upon the spring tides for docking and undocking. In European waters these high tides occur about two days after the full and new moons, or about once a fortnight. The different heights of these spring tides were understood, but tides are affected by atmospheric pressure and the prevailing winds. For example, the height of the spring tides at Plymouth is approximately fifteen and a half feet and that of neaps eleven and a half. A southerly gale driving extra water into the Sound increases the height of the tide by two to three feet, and delays

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1. PRO, ADM 7/662, fo. 78.

2. ShP, 146, no.103, 20 Mar 1777; BL, I, 289-90, undated, Kempenfelt to Middleton.

the high tide by as much as half an hour; northerly gales have the reverse effect.[1] Thus a southerly wind was to the advantage to the western yards, and a northerly wind to the eastern yards - exactly the reverse of a wind favourable for sailing. Even today the actual height of the tides cannot be calculated to any great degree of accuracy, and the yard officers then were working to a tolerance of inches.

The timetable for docking large ships, therefore, was determined to a large extent by nature and not by the exigencies of the service, and this factor demanded co-operation with the sea officers for clearing the ships to enable them to be docked on two or three tides a fortnight. Through lethargy and friction opportunities for docking were often missed, but sometimes unforeseen difficulties occurred. When the spring tides did not rise sufficiently, ships were unable to come out of dock. In July 1779, the Portsmouth officers could not get the Marlborough (74) undocked, in spite of "every effort...having had the lowest spring tides almost ~~was ever~~ were known in this yard". The next morning they succeeded because of a "brisk gale at south-west", but they were unable to bring in the next ship to replace her.[2]

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1. Stephens, p. 4.

2. NMM, POR/D/22, 2, 4 Jul 1779; see also ibid, 5 Mar 1780.

Sometimes unorthodox means had to be employed. The Salisbury (74) was undocked at Plymouth in 1782 by means of the extra buoyancy of a hundred butts bought from Southdown, "having apprehensions of her being neaped".[1] Although this was chiefly a problem with the western yards with larger ships, Deptford, too, had problems of this nature. Being unsure of enough water to undock the Jupiter (50), the Deptford officers proposed to,

> cut holes through between the main and false keels for ~~receiving~~ reeving of pendants...for lashing a sufficient number of butts and further to have the loan of the Woolwich or Chatham lighter to lighten her stern to help her floating out, as our lighter will be moored at the stern of the hulk to make more purchase. 2

Depth of water was also a problem once the ships were undocked. Deptford and Woolwich were only accessible at spring tides to moderately-sized ships. Large ships were built there, but there was not enough water to keep them at anchor, and they were usually towed away as soon as they were launched. The approach to Chatham also suffered from a lack of water, and the tortuous course of the Medway allowed a passage only if spring

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1. PRO, ADM 174/117, 25 Oct 1782.

2. PRO, ADM 106/3318, 23 Ap, 17 Jun 1778. Deptford had had problems with docking fifty gun ships since 1745 (see Baugh, p.265). On one occasion the tide, aided by a northerly wind, flowed over the top of the gates and floated two ships in dock (PRO, ADM 106/3385, 5 Feb 1775). There were only three accidents during the period in docking and launching, only one of which was serious. This involved the small Alecto fireship (PRO, ADM 106/3320, 21-27 Jul 1781; NMM, ADM B/194, 8 Ap 1777; POR/F/17, 21 May 1780.

tides coincided with a favourable wind - within ten points of the compass going up the river and six coming down.[1] In 1773 Sandwich noted the times which ships needed to get down the river to Sheerness, and came to a conclusion that, "~~upon~~ ok a medium,six weeks must be allowed".[2] Not only did this lack of water affect the transporting of ships, but it meant that they were not able to lie at Ordinary with all their ballast stowed, which was harmful to their planking.[3] Only at Sheerness was there no problem with depth of water, but here there was the disadvantage of an exposed position. Great damage was caused in February 1776 and January 1779 when wind and ice carried away ships and damaged boats and buildings.[4]

The difficulties of access to the eastern yards had long been acknowledged, but the western yards, in spite of being

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1. PRO, ADM 7/659, fo.9; also NMM, CHA/E/33, 24 Oct 1777.

2. PRO, ADM 7/660, fos.58-9. The Magnificent (74) had taken four months and three days, and the Marlborough (74) three months and twenty days. One example of the inconvenience was the Buffalo storeship (ex-Captain,70), which was ordered not to be loaded at Chatham; her cargo had to be taken down the river in lighters to be loaded at Sheerness (NMM, ADM A/2714, 18 Ap 1777). There had been a problem with depth in the Medway since the 1720's (H. Rees, p.95). See also Ehrman, pp.81-3; Baugh, pp.267-8.

3. PRO, ADM 7/660, fo.59. Gregson blamed Trinity House ("with a revenue which would purchase more than a Polish crown") for making no effort to deepen the river at Chatham and Gillingham, but contract lighters were kept going for most of the war (ShP,146, no.105, 30 Ap 1777).

4. NMM, ADM B/191, 1-9 Feb 1776; B/198, 4 Jan 1779.

blessed with comparatively deep water, were not free from navigational hazards.[1] Spithead was well protected, but the Sound at Plymouth was particularly exposed to southerly winds, and although both areas were resurveyed and buoyed during the war, there were twelve cases of ships of the line and eleven smaller ships going aground between 1774 and 1783.[2] During this period there were forty accidents either in or near the two western yards. Six ships of the line were severely damaged, and nineteen others were either lost or badly damaged.[3] There were many narrow escapes, and the damage would have been greater if the action of the yard officers and men had not been prompt and skilful.[4] There was little that they could do for the Bienfaisant (80) and the Ramillies (74) in May 1780 when these two ships were virtually reduced to wrecks by a particularly severe gale in Plymouth Sound, although they managed to bring the battered hulls into the yard.[5] Severe gales usually brought a list of damage from Ourry, for shelter

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1. See NMM, LAD II, plans 33, 37, 40, 44-6.

2. PRO, ADM 174/116, 12 May 1778; NMM, CHA/A/4, 7 May 1780; ADM BP/3, 1 Jan 1782; POR/G/1, 3 Jan 1782.

3. e.g. NMM, POR/F/16, 29 Aug 1775; POR/F/17, 9 Ap, 31 Dec 1779, 23 Mar, 23 May 1780; PRO, ADM 174/116, 19 May 1776, 9 Feb 1777. In addition, one ship of the line was virtually destroyed by fire (the Torbay (74) in May 1778); four smaller ships were similarly damaged.

4. e.g. NMM, POR/F/16, 31 Jul 1777; PRO, ADM 174/115, 2 Jan 1776.

5. PRO, ADM 174/117, 10 May 1780.

was difficult to gain with a southerly wind, and on several occasions ships had to cut away their masts and lie to anchor within sight of the harbour entrance.[1]

Even in moderate weather, there were difficulties with the harbour entrances of both ports. Some of this was due to human error, but considering the amount of shipping that the pilots handled during the war, there was surprisingly little damage.[2] There were complaints from sea officers over their refusal to be hurried in taking ships in and out of harbour, but the alacrity with which the Resident Commissioners sprang to the pilots' defence indicates that there was general confidence in their judgement.[3] During this period there were only eleven collisions of any degree of seriousness in the confined spaces of the harbour and nearby areas.[4] The "crookedness and intricacy" of the entrance to the Hamoaze necessitated warping

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1. e.g. PRO, ADM 174/116, 21 Feb 1777; 174/117, 10 Oct 1780.

2. The pilots were local men appointed on the recommendation of the Commissioner and examined for competence by Trinity House (PRO, ADM 174/116, 9 Aug 1776; 174/117, 25 Mar 1781; NMM, POR/F/17, 22 May 1778).

3. e.g. NMM, POR/F/17, 3 Feb 1779. Rodney ordered the pilots of Britannia (100) to be "confined" when she touched going into Portsmouth (ibid, 19 Dec 1779), and issued a public complaint against the Plymouth pilots in 1782 (Major-General Mundy, The Life and Correspondence of the late Admiral Lord Rodney, (London, 1830), II, 179-80, 1 Jan 1782). Ourry, however, eventually had trouble with the "inattention" of the Plymouth pilots (PRO, ADM 174/117, 12 Feb, 26 Mar, 2 Ap 1782).

4. e.g. NMM, POR/F/16, 30 Dec 1778; POR/F/17, 22 Sep 1779; PRO, ADM 174/117, 4 Nov 1781.

ships in and out, but this was only possible in calm weather, and delays could be counted in weeks if the wind was adverse.[1] There was very little margin of error; in 1777, for instance, the Torbay was "taken aback in the Narrows" in moderate weather, and only a nearby transport buoy saved her from becoming totally lost.[2] However, there were at least no difficulties with depth of water; at Portsmouth this was a serious problem.

After the Sandwich (90) had received considerable damage coming into Portsmouth with her guns aboard in late 1779, the Master Attendants complained to the Navy Board of the difficulties of bringing in three-deck ships with their guns aboard. They pointed out that when the ships were well-laden they neither sailed nor steered well, and that this was aggravated by lack of water under the keel, which meant that the ships did not respond well to their rudders. Further, the depth necessitated taking them out at spring tides, which meant that if the ships should go aground, then there may have been no tide high enough to float them off until the next spring tides; the ideal should be that the entrance should be attempted at neap tides, "so that great ships go in and out of port when the tides are on the increase."

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1. PRO, ADM 7/659, fo.61; e.g. NMM, ADM A/2690, 25 Ap 1775; ADM B/189, 3 May 1775; see also PRO, ADM 174/116, 1 May 1778.

2. PRO, ADM 174/116, 25 Feb 1777; also ibid, 27 Feb, 31 Oct 1778.

A further advantage was that at neap tides the period of slack water at high tide was longer,

> for on the spring tides, which run so exceeding strong,.. makes it dangerous to break a great ship loose until high water, there being then but little time left to get the ships over the shoal water before the tides begin to fall. 1

The Admiralty approved the proposal that all guns should be loaded at Spithead, and in spite of a lack of co-operation from the Ordnance, this slower but safer method was adopted.[2]

Naturally, the more that had to be done outside the harbours made the whole process of refitting and docking very much slower. All the last-minute tasks which were usually done while the ship was loading had to be done at Spithead, and yard workers had to be transported out to the ships.[3] In addition, the ships were much more exposed to the weather. The delay of Byron's fleet in May 1778, which the King witnessed, was due to exceptionally bad weather.[4] In 1781 repairs and storage of

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1. NMM, POR D/22, 27 Nov 1779.
2. NMM, ADM B/200, 29 Nov 1779; ADM A/2746, 22 Dec 1779; POR/D/22, 6 Ap 1780. Before the Admiralty approved this measure, the Britannia also went aground, but with no damage (NMM, ADM B/200, 20 Dec 1779). Ships from the River yards took on their guns in Long Reach, and from Chatham at Blackstakes (NMM, CHA/E/33, 24 Oct 1777.
3. NMM, ADM B/200, 14 Dec 1779.
4. G,IV, 132-3, 6 May 1778, King to Lord North; SaP, II, 44-5, 5 May 1778, Robinson to Sandwich; ibid, 63-6, 17, 18 May 1778, Keppel to Sandwich.

Kempenfelt's fleet were delayed, "by the very bad weather that has prevailed lately, which prevented any intercourse between the shore and the ships". Five days later the Admiral reported the same situation; "yesterday was wholly lost from the violence of the wind". Howe's fleet for the third relief of Gibraltar was also delayed by the same conditions.[1] At the end of 1780 Pye tried to get the decision on offloading the guns at Spithead reversed, since it took so much time and there were no ships in harbour ready for empty docks. The Navy Board, in reply to an Admiralty request for an opinion, admitted that a decision to bring the ships in with their guns could be left to the discretion of the Master Attendants, although it warned that it was still a risky operation. This arrangement lasted until the end of the war.[2]

The shoal at the entrance of Portsmouth harbour had made its appearance during the Seven Year War, and depth of water in the harbour gave cause for concern.[3] A report of an allegation by a local pilot that the harbour there would fill up, unless ballast lighters were quickly used, reached the Admiralty. The

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1. SaP, IV, 76-7, 19, 24 Nov 1781, Kempenfelt to Sandwich; G, VI, III, 22 Aug 1782, Keppel to the King.

2. NMM, ADM A/2758, 12 Dec 1780; ADM/BP/1, 13 Dec 1780.

3. There was a small bank there as early as 1600, but the shoal had become difficult in the 1760's (Kitson, 1947, p.258; NMM, B/175, 30 Oct 1764; LAD II, plans 45, 46).

yard officers discredited this claim, and they showed very proper caution to his proposal to dredge away the eddy bank by the harbour mouth. The Master Attendants commented: "if that bank was ~~removed~~ taken up, ... there is no man can say, what course the tide then ~~may~~ would take", and they pointed out that ballast lighters could more profitably be used elsewhere in the harbour.[1] Nevertheless, a constant watch had to be kept by the Commissioner. Wrecks had to be raised, and refuse had to be prevented from being thrown into the harbour.[2] At Portsmouth the Ordnance had to be restrained from throwing mud into the water near the docks, and at Plymouth the contractors clearing mud from the mast pond were observed disposing of it in the harbour.[3]

Although there was little fear that the Hamoaze would silt up, the condition of the bays to the west of Plymouth, called Cattewater and Sutton Pool, gave rise to a petition for aid from the local merchants. The Navy Board reported that while this area was useful for smaller naval ships, it did not see that the proposed improvements would in any way help the harbour.[4] The responsibility for dredging and clearing these

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1. NMM, ADM BP/5, 27 Ap 1784 (enclosure of 15 Feb 1781).

2. NMM, POR/F/15, 30 Jan 1774; POR/G/1, 31 May 1776; POR/F/16, 2 Jun 1776; POR/D/23, 26 Jul 1782.

3. NMM, POR/D/22, 23 Jun 1780; PRO, ADM 174/116, 9 Ap 1776.

4. NMM, ADM A/2689, 14 Mar 1775; B/189, 21 Mar 1775.

two areas had been given to one Joule in 1710 by Act of Parliament, but his executors had been negleotful. In return for this duty, Joule had been given the monopoly of supplying all ships with stone ballast, but since his monopoly was about to expire, the supply was inefficient, and gave rise to complaint.[1] Efforts to obtain another contractor to supply 14,000 tons of ballast from East Looe ran into difficulties, and inefficient ballasting led to delays at the end of the war.[2] The ballasting of ships at Portsmouth tended to run on an ad hoc basis. In 1775 the Ordnance accused the dockyard of contributing to the breach in the Southsea fortifications made by a storm by having taken ballast from the beach in front of the castle. Relations with the Ordnance in particular could be difficult, for space, even at Portsmouth, was not unlimited, and the erection of piers and the laying of moorings sometimes led to friction.[3] The huge amounts of timber delivered to the yards often clogged up neighbouring creeks, and there were complaints of lack of access. All these problems had to be settled by the Resident Commissioner.[4]

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1. 8 Anne c.4. The monopoly was granted for 71 years.

2. PRO, ADM 174/117, 19 Jul 1782; 174/18, 20 Dec 1782; 174/118, 7, 14 Mar 1783.

3. e.g. NMM, POR/F/15, 6, 15 May 1774, 8 Ap 1775; PRO, ADM 174/115, 19, 30 May 1775.

4. e.g. NMM, POR/G/1, 25 Aug 1780; POR/F/17, 1 Sep 1780; PRO, ADM 174/116, 29 Dec 1778; 174/117, 8 Dec 1780.

There was one more natural cause of delay to refitting. It was ironic that it should be the three refitting yards which lacked an abundant supply of fresh water, which, although used by the bricklayers and at the smithery, was primarily needed for supplying the fleet. Portsmouth was the best served, but in 1779 an observer reported that, "the common watering place is so much drained that lighters have been sent to Southampton river... This must impede our supplies very essentially".[1] At Sheerness and Plymouth there was a constant problem, for there was no direct water supply at all, and both had to be supplied by boat. Sheerness garrison had, "no other than the rain which falls upon the battery", and all water had to come from Chatham in a boat designed for the purpose. However, one boat was found to be insufficient, and the Queenborough yacht supplied the garrison - a situation over which the Navy Board protested. However, its suggestion that the military should arrange its own water supply was overruled by the Admiralty. After the war, the possibility of a reservoir and alternative supply was investigated.[2] At Plymouth water for the yard had to be shipped "at great expense" from Southdown. In 1781 a scheme put forward by two contractors for piping water into the yard was enthusiastically supported by

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1. Miscellany III, (ed) W.G. Perrin, (NRS, 1928), p.148, 11 Sep 1779, Benjamin Thompson to Germain; also G,IV, 427, 6 Sep 1779, Sandwich to the King. A 98 gun ship needed 184 tons of water for the four months of Channel service, and a seventy-four, 113 tons (NMM, POR/D/22, 31 Aug 1779).
2. NMM, CHA/M/3, 24 Ap 1770; ADM A/2690, 26 Ap 1775; A/2691, 12 May 1775; ADM B/189, 1, 3 May 1775; ADM BP/6a, 24 Oct 1785; ADM A/2818, 29 Dec 1785.

Ourry and the officers, but it foundered on the question of cost to be borne between the Navy, the Ordnance and the Victualling Boards, so that the yard remained without water throughout the war.[1]

Sandwich had done what he could to improve the yards, but the increased size of the fleet during the war found them wanting. Yet while the many problems of day-to-day administration were due to a lack of foresight, and investment in the yard facilities, it has often been forgotten by subsequent critics that the yards officers and men laboured under considerable natural difficulties. Many of the problems were beyond eighteenth-century technical accomplishments. The difficulties of dredging and reclaiming land on a large scale and in making large enough docks, and the lack of a motive power stronger than that provided by horses and men, imposed limitations which should not be forgotten when judging the

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1. NMM, ADM A/2760, 3, 16 Feb 1781; A/2762, 13, 20 Ap 1781; A/2763, 17 May 1781; ADM BP/2, 20 Feb, 1 May 1781; PRO, ADM 174/115, 30 May 1775; 174/117, 16 Feb 1781; PP-CF, p.316. A previous scheme had foundered on the bad feeling between the towns of Plymouth and Plymouth Dock. Samuel Johnson, who was travelling in Devon at the time (1762) "affecting to entertain the passions of the place, exclaimed, 'I am against the dockers...let them die of thirst'". (Boswell, Life of Johnson, Everyman ed., I, 234). The problem was not resolved until 1793; see C.B.M. Sillick, "The City Port of Plymouth" (unpub.Ph.D. thesis, London, 1938), Appendix B,ii.

yards from the hindsight offered by the age of the internal combustion engine. If one adds to these natural limitations the need for a favourable wind to coincide with all the other variable factors, it is perhaps not surprising that estimates tended to depend on experienced guesswork, and schedules on a good deal of luck.

Chapter Six. The Performance of the Dockyards.

i) Building.

There are several difficulties in attempting to assess the performance of the six dockyards during this period. The first is the lack of detailed studies of former or subsequent periods. Secondly, there are problems of comparison, for the yards operated on a scale which no other contemporary organisation could match. Thirdly, much contemporary comment was misleading or misinformed; few people attempted to understand an organisation which they did not hesitate to criticise. The handling of the fleet was politically important, and Parliamentary attacks complicated the issue. Finally, there is the difficulty of applying arbitrary standards in judging the performance of the yards, for their functions varied between peace and war. During peacetime the chief role of the yards was to maintain an effective fleet by building and repairing, but when hostilities began these two functions took second place to the refitting and maintenance of the fleet.

Once war had been declared speed was the most crucial strategic and political factor, and the Navy Board was forced to put cost and even workmanship on one side. In peacetime, however, these last two factors were naturally considered as vital

because building and repairs were the most important functions of the yards. In order to keep a complex discussion to its simplest elements, the three functions of the yards are best judged by the factors which were uppermost in contemporary minds. Thus costs will be considered primarily in relation to building, workmanship to repairs and speed to refitting. This is not to imply that, for instance, the speed of building, or any other combination of criteria to function, was of no importance.

Of all the assessments of the dockyards' performance, the problem of costs remains the most elusive. There was general dissatisfaction with the amounts that had to be paid for ships; Sandwich would not have persevered in the implementation of task work had he been satisfied that operations were proceeding in the most economic way possible. Yet many questions remain. Merchant yard ships cost less, but direct comparison with the royal yards is largely fruitless. Contractors built for profit only, had fewer overheads and there was no necessity for them to go to the expense of maintaining a large workforce.[1] In relation to private yards, the royal yards were an uneconomic proposition; the methods of calculating the figures in the Estimates demonstrate that cost was a factor which was hardly every considered by the yard officers. Besides, the size of the organisation and the fact that it was not

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1. For an excellent analysis of this problem see Baugh, pp. 332-3. For costs of individual ships, from the Abstracts of Progress, see Williams, p. 425.

governed by the profit motive cast doubt on the accuracy of the figures; it would be true to say that the methods and inaccuracies of the accounting processes hardly reflected the true cost of the ships.

One of the first problems that Sandwich had to face was the condition of the ships that he had inherited from Hawke. During his first year in office he was optimistic: "considering the very severe services on which our fleets were employed during the last war...it seems to me rather to be wondered that we have so many good ships...many of them have lasted longer than we had reason to expect".[1] There were eighty-six ships of the line, but this, as Sandwich soon found, was only the strength on paper.[2] In spite of Opposition claims, it is clear that the effects of the building of ships in the Seven Years War with unseasoned timber were beginning to be felt in the early years of Sandwich's administration, and it soon became apparent that the condition of the ships was not as good as the First Lord had first thought. When two ships, listed as in "perfect condition", were found to need a small repair, he wrote that, "it is much to be feared, that almost every ship that comes to be examined will be found in this melancholy state".[3]

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1. PRO, ADM 7/659, fo. 113-4.

2. SaP, IV, 303-5. Robert Tomlinson, an important technical source for the Opposition during the war, listed 81 ships of the line as being in a satisfactory condition (J.G. Bullocke (ed), The Papers of Robert Tomlinson, (NRS, 1935), pp.44-5 and Appendix I).

3. PRO, ADM 7/660, fo. 32; see also Derrick, p. 158.

This was pessimistic, but the condition of the ships left much to be desired. The truth is difficult to unravel; any administration in the second half of the eighteenth century found it difficult to estimate with any certainty how many ships it had at its disposal at any one time, and many, including Sandwich, used this uncertainty to advantage.[1] In addition there were many conflicting lists drawn up by both sides in Parliament. However, it is clear from the longevity and subsequent performance of the ships built in the 1760's that their condition was weak, and this gives credibility to Sandwich's consistently-maintained assertion that the fleet was in a deplorable state in 1771.[2] Yet in spite of considerable energy on the part of the Navy Board and the yards, it was not until 774 that a ship of the line was launched, by which time fourteen of the line and forty-four smaller ships had been broken up or sold.[3] Much of this delay was due to Sandwich's order to let ships lie in frame so that their timbers would season,[4] but even allowing for this, the First Lord's early optimism had left him by 1773. During the Visitation of that year he noted that during the previous twelve months, six ships had been condemned

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1. See above, pp. 69-70.

2. See G,V, 342, Jan 1782; Mackesy, p. 167; Williams, pp. 42-44, 447. A sample of 74 gun ships shows that the list of those in good condition in 1771 provided by Tomlinson was very inaccurate (Bullocke (ed), Tomlinson Papers, Appendix I).

3. See NMM, ADM BP/3, 22 Jan 1782. Between 1771 and 1777, 28 ships of the line were broken up (SaP, IV, 306, 27 Dec 1781). The only source for the allegation that the Surveyors built ships unnecessarily rather than repairing them comes from the unreliable Gregson (ShP, 146, no.105, 30 Ap 1777; see Mackesy, p. 166).

4. SO(a), 618, 8 Dec 1772.

and no new ones built:

> It is to be observed how very short the rebuilding falls of the decay; and that unless we can find means by a sufficient seasoning to make our ships last longer, our strength at sea must in a few years be reduced to a state that carries with it very alarming reflections. 1

It soon became clear to Sandwich that it was beyond the capacity of the royal yards to produce enough ships to maintain the number of warships, and replace those which succumbed to dry rot. The Navy Board was therefore forced to use merchant yards in peacetime, although the building of ships over seventy-four guns was thought beyond the means and expertise of private builders. Nevertheless, five out of the nine capital ships laid down between the beginning of Sandwich's administration and the outbreak of war were built in merchant yards.[2] Out of the forty-nine ships of the line completed between 1774 and 1783, twenty-four were built in merchant yards.[3] In addition, they built seven fifty-gun ships and forty-one frigates, and at the end of Sandwich's administration

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1. PRO, ADM 7/660, fo. 12.

2. Between 1771 and 1777 13 ships of the line were completed, 9 were laid down and completed, and sixteen were building at the beginning of the war (Abstracts of Progress, 5, part 1; Williams, pp. 423-4).

3. See Appendix XI; also NMM, ADM BP/3, 22 Jan 1782.

there were nineteen frigates building.[1]

Although the merchant yards played a vital role in building up the fleet in peacetime, they were of greater importance in wartime, because the royal yards became more and more absorbed in keeping the fleet in a serviceable condition.[2] The administration found nine new locations where ships could be built, and even used Leith in Scotland, where, however, there was a good deal of trouble in supplying timber to the builder.[3] On the whole, the Navy Board's administration of the shipbuilding contracts was marked by success. Private yards built quickly, sometimes producing line ships in under two years, although few were completed in under three. It is not unreasonable to infer from this short time that these ships were not built with such care as those in the royal yards. Certainly shipwrights working in merchant yards had more incentive to complete the job as quickly as possible. Besides, there were stiff "mulcts" or fines for late deliveries written into the contracts - a factor which, of course, was completely lacking in

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1. For numbers and types of ships built in merchant yards see Williams, p. 430. The peacetime establishment of small ships (5th rate and below) was kept low and increased rapidly at the beginning of the war. Between 1776-9 the number was increased by 211, of which 69 were bought (NMM, ADM BP/3, 22 Jan 1782). For instance, there were 44 sloops at the beginning of 1775, 92 in 1782, and by 1785 the establishment was back to 44 again (Derrick, pp. 161, 164, 167; SaP, I, 422; NMM, ADM BP/6a, 23 Ap 1785).

2. See ShP, 146, no. 172, undated, Gregson to Shelburne.

3. G,V, 352-3, Jan 1782; Add MSS, 38344, fos. 312, 314-8.

the royal yards.[1] However, some time was lost because of the need to transport timber and stores to the builder, and also when transporting the completed ship to a royal yard for fitting out. Those built at Liverpool and Bristol had to be sailed under jury-rig to Plymouth, and even shorter journeys took a long time.[2] Eventually, the Navy Board was forced to allow one or two frigates to be fitted out at the merchant yards at which they were built.[3]

In fact, such were the strains of the American war that the royal yards virtually lost their capacity to produce large ships. In the two years after Sandwich left office they only launched three ships of the line, and they were only sixty-four gun ships; one of them, the Polyphemus, had been on the stocks since 1774. In the same time, eight seventy-four gun ships and four sixty-fours were produced by merchant yards, in addition to a vast number of smaller ships. In 1782 Sandwich claimed that thirty-seven ships of the line were building, which he compared favourably with seventeen in 1759 and fifteen in 1770. However, sixteen of these ships had only been ordered, and two of these were never

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1. Between 1774 and 1783, 16 ships were late and their builders fined. See NMM, ADM B/197, 11 Dec 1778; B/200, 20 Nov, 16 Dec 1779; BP/I, 1 Jan, 8 May 1780; BP/2, 24 Jan, 22 Jun, 28 Aug, 30 Nov 1781; BP/3, 22 Mar, 7, 15, 29, 30 May, 18 Jul, 18, 22 Nov 1782. Merchant yards also had troubles with strikes (e.g. ADM B/194, 19 Nov 1777, Roger Fisher to the Navy Board).

2. e.g. NMM, ADM B/190, 16 Dec 1775; B/191, 15 Jan 1776; B/199, 10 Jul 1779; PRO, ADM 174/117, 10 Nov 1780. The Charon (44) went aground on the Maplin Sands before she was commissioned on her journey from Harwich to Sheerness (NMM, ADM B/197, 10 Nov 1778).

3. e.g. NMM, ADM A/2714, 24 Ap 1777; also BL, III, 68, 17 Mar 1805, Middleton to Melville.

built. He also included a hundred-gun and five ninety-gun ships; technically they were under construction at the western yards, but work on them had been stopped for years because of pressure of other work. Thus of the twenty-two ships actually under construction at the end of his administration, five had no hope of being completed until the peace: of the seventeen seventy-four and sixty-fours, fourteen were being built in merchant yards.[1]

As at other times in the century, there were serious delays in the building of ships, especially those of the first or second rate. Yet it is unrewarding to compare building times. For instance, the delay at the western yards in the building of the St. George (98), Royal Sovereign (100) and Glory (90), which took eleven, twelve and thirteen years respectively, indicates nothing more than that they were built at yards which were heavily pressed and short of shipwrights for most of the war.[2] Building a ship was a long and complicated process. It did not follow, as Robert Tomlinson argued, that if twelve shipwrights could build a sixty-four gun ship in three years, and fourteen a seventy-four in the same time, that, by the same reckoning, fifty shipwrights,

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1. See Appendix XI; also NMM, ADM BP/3, 26 Dec 1781; G,V, 351, Jan 1782; Add MSS 38344, fos. 310-11.

2. See Williams, p. 428; Abstracts of Progresses, 5, part 1. The building times were 1774-1785, 1774-1786 and 1775-1788. In addition there were the Medusa (50) at Plymouth (1776-85) Leopard (50) at Portsmouth (1776-85).

twelve labourers and nine pairs of sawyers could complete a seventy-four in six months.[1] It was essentially a process which could be hurried only marginally by ensuring that a correct amount of labour and materials were at the right place at the right time. Even at the easiest times this was not always possible.

ii) Repairing.

As in the case of building, the capacity of the yards to keep pace with repairs was severely limited; the great difference, however, was that the Navy Board did not use merchant yards to repair ships because it distrusted the quality of their workmanship. An eighteenth-century warship needed constant attention. Of the thirty-four seventy-four gun ships which served for all of the five years of the European war (March 1778 to March 1783), only twelve went through this period without being taken out of commission to be repaired. These twelve ships enjoyed this uninterrupted service either because they had only just been built, or because they had just undergone a large repair before March 1778.

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1. Bullocke (ed), Tomlinson Papers, pp. 48-9.

Moreover, having gone for five years without a repair, they did not last long; all except one had either sunk, or been sold or needed a large repair in the two years immediately after the war.[1]

Once the war had started, there was no chance of the six yards keeping pace with damage and rot.[2] There was always a growing queue of ships in harbour needing repair, especially towards the end of the war when they had returned from foreign commissions.[3] At the height of the war, the situation became so grave that Middleton thought that it would be easier to repair hulks on a temporary basis rather than to repair those ships in the queue. "Against the opinion of many, but with the agreement of the junior Surveyor", Middleton wrote [illegible], "I went down to the yards myself, and for appearance sake, had some of the best ships surveyed in my presence".[4] This was a desperate decision which reflected the difficulty of maintaining the number of effective fighting ships. It can be judged as successful, although there is no way of knowing if the Portsmouth officers were correct when they reported that

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1. Abstracts of Progress, 5, part 1. Most of these twelve anyway had little chance for repair since they were away on foreign commissions; in addition, their refits lasted longer than average.

2. A list made by the Navy Office at the end of 1781 shows that 63 ships of the line were repaired between 1771 and 1781, but this makes no allowance for several ships which were repaired twice or more (Add MSS 38344, fo. 321).

3. For instance, at Portsmouth in March 1782 there were 17 ships of the line in Ordinary, seven of which were permanent hulks. Only 3 were being repaired; the rest were rotting, although some were not worth repairing (NMM, ADM BP/4, 22 Feb 1783).

4. Add MSS 41079, fo. 85; also BL, III, 28, May 1804, Middleton to Dundas.

Middleton's plan would "only hinder our bringing forward the works".[1]

Although the fact that outside labour was not involved ensured that there were never enough men and facilities to keep pace with repairs, the lack of priority and urgency in this sphere of operations made matters much worse. Each repair was classed by the Navy Board (on the report of the Master Shipwright) as "great", "middling" or "small", by a computation of time rather than expense; some of the large repairs lasted an exceptionally long time. The Valiant (74) was in dock at Portsmouth for four and a half years between October 1771 and April 1775, and the Hero (74) was at Plymouth from June 1776 to September 1780 for only a slightly shorter period.[2] The reason for this slowness was that repairs took second place to more immediate work. Thus any calculation of the speed of repairs reflects not so much sloth on a particular job, but shows merely that resources were being used elsewhere. The average time taken for all large repairs on seventy-four gun ships between 1770 and 1786 was two years, eight months. Between 1771 and 1777 middling repairs took a year and small repairs over five months. Once the war had started they took less time. Middling repairs average nine months and small repairs four months.[3]

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1. NMM, POR/D/23, 27 Feb 1782. Of the 17 at Portsmouth, the Royal William (84), Elizabeth (74), Grafton (74), Essex (64), Modeste (64) and Firm (60) were patched up. All except the Elizabeth and the Grafton had been hulks since the beginning of the war.

2. Abstracts of Progress, 5, part 1.

3. ibid. To the nearest day, large repairs took 2 yrs. 244 days: 1771-77, middling repairs, 361 days; small, 158 days: 1778-1783, middling repairs, 266 days; small, 123 days.

Although this shorter time can be accounted for by the greater number of hours worked by the men during wartime, there is no doubt that corners were cut during hostilities. By 1779 the officers were told that it would become "frequently necessary...to employ ships on service without being able to enter into so large a repair as might at more leisure time become necessary". After the war the order was reversed: "Desist from temporary repairs and consider all ships (in future) to be intended for every kind of service".[1] It was the caulking which suffered the most from hurried work when the yards were under constant pressure. "Do no more than make her tight and safe" ran one Navy Board order early in the war.[2] Some of the reports of the workmanship on the ships built by merchant yards no doubt strengthened the resolve of the Navy Board not to employ them on repairs. "The caulking the new frigates want is very great indeed", wrote Hood in 1779; one of them had, "not a seam in her that is not quite open".[3] Only two years after the Agammemnon (64) was built at Bucklers Hard, her captain complained that, "no caulking continues

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1. PRO, ADM 174/18, 10, 20 Nov 1779; 174/117, 5 Ap 1782; 174/118, 16 Feb 1783. See Derrick, pp. 180-1.
2. PRO, ADM 95/95, 25 Jul 1777.
3. NMM, POR/F/17, 2 Nov 1779. The ship in question was the Champion (44), built by Barnard of Ipswich. See also the unflattering description of the building of the Crescent (36) at Burlesdon (POR/D/23, 9 Dec 1782). On the other hand, the Navy Board wrote on the report of the Plymouth officers of the Cleopatra (32), built by Hillhouse of Bristol, that "we are glad to find the work so well performed" (PRO, ADM 174/18, 24 Ap 1780). See also SO(b), 56, 12 Mar 1783.

with effect for more than a few days going to sea".[1] The Navy Board had to warn against hurried caulking in the royal yards on more than one occasion.[2]

Often, however, as in previous wars, ships were "simply too far gone".[3] There was a limit to the effectiveness of caulking an old ship. Admiral Barrington wrote of his ship, the Prince of Wales (74):

> She is..weak and strains so much in a sea that the ocham works out of the seams to such a degree that the people never lay dry in their beds, and if I may be allowed to give an opinion it is not fitting that she should go to sea again without her being ridered. 4

Barrington was referring to the practice of putting "breadth riders" (or cross braces) into ships to strengthen them. It was by this method that old ships were brought into the line in 1778 and 1779 "for summer service only".[5] In some cases the condition of the ships was not as bad as was thought. The Sandwich (90), built in 1759, ordered to be laid up in March 1779 and made into a

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1. NMM, CHA/E/34, 18 Feb 1783. The fault may have been in building with unseasoned timber rather than with hasty caulking in both these cases.
2. e.g. SO(a), 12 Dec 1770; NMM, CHA/E/33, 6 Aug 1781.
3. Baugh, p. 333 n.2.
4. PRO, ADM I/1498, 6 Jan 1778. The Prince of Wales was "ridered", but had to be laid up in February 1780, and was ordered to be broken up in July 1783. She was built in 1765 at Milford.
5. At least 17 ships were given only temporary repairs between 1778 and 1782, and another 15 given substantial strengthening through riders (PRO, ADM 95/96; NMM, ADM A/2723-2782).

convalescent ship, was found to be fit enough for summer service, "by adding some riders, hooks, rebolting etc", and in fact served, once coppered, in the West Indies until well into 1782.[1]

There seemed to be little criticism from the sea officers over the quality of yard workmanship in this period. There were differences between the yard and sea officers over what constituted "a defect of consequence", and occasionally the Navy Board was involved;[2] if the officer was influential he would go to the Admiralty. Forty years before, "there were murmurings in the fleet, but the number of well documented instances is not impressive".[3] One reason is that although the Admiralty would give questions of workmanship a fair hearing, during wartime it was far more concerned with speed. Moreover, once the ship had been commissioned, the Boatswain and Carpenter would sign the weekly progress to signify that the ship which they had taken over was in good condition. Technically, the yards could not be held responsible for any defect which was discovered from that moment. The Navy Board fell back on this point in one complaint:

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1. PRO, ADM 95/95, 11 Mar, 22 Jun, 1 Sep 1779; NMM, ADM B/199, 3 Jun 1779; ADM A/2779, 6 Sep 1782. See also POR/D/23, 20 Jun 1782.

2. e.g. PRO, ADM 95/96, 8 Jan 1778; NMM, POR/D/21, 9 Dec 1778. Complaints of badly-cut sails were also received (e.g. NMM, ADM A/2756, 19 Oct 1780; PRO, ADM 174/17, 27 May, 4 Jul 1777).

3. Baugh, p. 333.

they "must beg...to mention that the Carpenter ~~had~~ signed the progress... (and that) every method has been used to prevent complaints".[1]

It is difficult enough to come to conclusions about the quality of workmanship, either in merchant or royal yards, in war or peace, but impossible to connect it, as did political opponents, with the number of losses at sea.[2] Many other factors have to be taken into account, including seamanship and the quality of ship-board maintenance. Sandwich himself blamed "our immense losses" on "the late dreadful hurricanes and other misfortunes".[3] There is some basis for truth in this contention. Of the forty-four ships of the line lost or condemned during Sandwich's administration, only seven foundered at sea. Six of these foundered during the hurricanes of 1780 and 1781.[4] Those lost in the storms of 1782 can be blamed on the little understood effects of copper sheathing on iron bolts. Some of these ships were in very bad condition

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1. NMM, ADM B/195, 27 Dec 1777. See POR/J/2, which contains the only examples of weekly progresses, for these signatures of the ships' warrant officers.

2. e.g. Gabriel Snodgrass, Letter to the Rt. Hon. Henry Dundas...on the mode of improving the Navy of Great Britain (London, 1797). Snodgrass claimed that 66 ships foundered between 1775-1784 because of green timbers and bad workmanship, and Albion (p.315) accepts the implications of this conclusion.

3. G,V, 350, Jan 1782.

4. NMM, ADM BP/3, 22 Jan 1783. See W.S. Rowbotham, "The West Indies Hurricanes of October 1780", Journal of the Royal United Services Institute, CVI, 1961. 12 (6 of the line) ships were lost at this time; they were the Thunderer (74), Culloden (74), Cornwall (74), Terrible (74), Stirling Castle (64) and Defiance (64). In addition, 20 (9 of the line) were very severely damaged. 17 ships of the line in all came home in 1781 needing a great repair (Add MSS 38344, fo. 308, 27 Dec 1781.

when the hurricanes struck, but considering the length of time they had been in commission, it was hardly the fault of the yards. Few wars have been fought with so much of the fleet as far from repair facilities as this one.

In spite of thin and conflicting evidence, mainly from yard officers jealous of building standards, it would be fair to assume that, within the limits of time imposed by hostilities, the work of the yards was well performed. The great weakness was their limited capacity. Lacking a technological solution to arrest decay in the fleet, an administrative solution to speed their repair was not impossible. However, the repairing of ships was entrusted to merchant yards only, "in cases of absolute necessity, and confined to frigates only". Middleton also recalled that, "necessity forced it upon us during the American war, and it was put a stop to, as soon as we were able to procure a sufficiency from our own yards".[1] Yet without this extra help, an effective rate of repairing ships, even with a lowering of standards, could not be maintained. The administration produced a fleet which it could not, because of its prejudices against merchant yards, successfully keep in repair. It was a wasteful process, and, ironically, the Navy Board still had to depend upon the workmanship of private yards, for the new ships built by them were essential for maintaining the effective numbers of the fleet.

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1. Add MSS 41079, fo. 12[illegible]; BL,III, 68, 17 Mar 1805 to Melville; also NMM, ADM A/2781, 26 Nov 1782.

iii) Refitting.

It was, however, the refitting of ships which was the most important role of the dockyards during wartime.[1] Except in a few cases of emergency, the ships were docked at each refit, and their bottoms inspected and surveyed. During peacetime, this was automatically done by the officers every three years (by the process known as "Triennial Trimmings"). In order to dock, the ships had to be cleared of guns and stores, and most of the rigging struck. There were regular intervals at which certain parts of the ship were to be inspected; many of the routines had not been changed since the previous century. Once the ship was out of dock it was up to the ship's company to prepare it for sea again, and take on ballast, victuals, water, guns and stores.[2] The yard artificers had rarely finished by this time, for there were also many last-minute jobs which had to be undertaken afloat. Painting could not "with propriety" be done until the ships were "scraped and cleaned,..the rigging tarred and the guns in...which is seldom accomplished until they get to Spithead".[3] In 1779 Hood requested the Navy Board to provide two pitch boats to be permanently stationed

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1. As in the case of repairs, refits at merchant yards of small ships were allowed only under exceptional circumstances e.g. PRO, ADM 95/95, 15 Jan 1778; NMM, ADM A/2756, 7 Nov 1780.

2. For an accurate (and colourful) account of refitting ships at Portsmouth, see Sutherland Horne, pp. 58-60. For periodic maintenance, see Ehrman, p. 79.

3. NMM, POR/D/23, 5 Aug 1782; also CHA/E/33, 11 Ap 1780.

with the fleet, because of the "almost continual demand there now is for caulkers at Spithead".[1]

Since the eastern yards were so inaccessible, the majority of ships were refitted at Portsmouth and Plymouth. Only occasionally was a ship of the line fitted in the Thames or Medway, usually just after being built. Between 1771 and 1782, 152 ships of the line were docked 653 times, in addition to an enormous number of smaller ships.[2] Between 1774 and 1783 there were sixty-five seventy-four gun ships, of which six were never commissioned. Three were commissioned only for a month or so at the end of the war. The remaining fifty-six were docked 161 times, and 57% of these refittings took place between 1777 and 1779. 87% of these refits took place at the western yards.

Coppering had a dramatic effect on the number of refits, cutting their number in 1782 to half that of the peacetime figure.[3]

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1. NMM, POR/F/17, 2, 8 Nov 1779; also POR/G/1, 24 Jul 1777; POR/D/21, 15 Oct 1777, 5 Feb 1778; PRO, ADM 174/117, 2 Feb 1781.

2. Williams, p. 446. Sandwich stated in his defence that 86 ships of the line had been refitted between 1778 and 1781 (SaP, IV, 296), but this figure does the yards an injustice, for this list was only compiled from ships in commission at the end of 1781, and takes no account of ships de-commissioned before that date. Mackesy is therefore incorrect when he quotes from a similar source that there were only 151 refits of ships of the line between these two dates (Mackesy, p. 170; Add MSS 38344, fos. 320-3).

3. Calculations from the Abstract of Progresses, 5, part 1. The number of refits for all seventy-fours were as follows: 1774, 18: 1775, 13: 1776, 17: 1777, 31: 1778, 27: 1779, 31: 1780, 13: 1781, 13: 1782, 8: 1783, 3: In 1779 and 1780, 29 seventy-fours were coppered; the effect can be seen in the sharp drop of refits by 1782.

Although coppering took much strain off the yards from 1780 onwards, it did not live up to its expectations entirely. Too much was expected of it; one order of early 1780 stated that, "the ships that are coppered will seldom be under orders for refitting".[1] In any case, the yards had to supply ships with stores, even if they did not have to dock them, and much more work had to be done afloat.

It was not until the mobilisation of 1778 that the yards were fully tested. Sandwich had been held back by North in his attempts to rearm, but by the end of 1776 there were thirty-six line of battleships mobilised at home, although the demands from America had left the frigate situation in a "catastrophic" state.[2] Yet by October 1778 there were sixty-two ships of the line in action throughout the world, and another eight ready to receive men. "Seventy ships in the first months of a war was no mean achievement".[3] In spite of Keppel's surprise in finding eleven of his best ships ordered to America with Byron, he was into the Channel by June.[4] In this case the lack of ships reflected the difficulties of the Admiralty's strategic policy rather than a lack of energy and action

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1. PRO, ADM 174/18, 29 Feb 1780.
2. Mackesy, p. 174.
3. ibid, p. 176.
4. See SaP, II, 54, 9 May 1778, Keppel to Sandwich.

at the yards, and at all times the war in America undermined the fleet at home. Far more significant from the point of view of time was the general reluctance to mobilise at all, and, once the mobilisation was under way, the want of seamen was critical.[1] It was this that was the largest hindrance in getting ships to sea throughout the war, although much of the blame for delays in later years can be put upon Sandwich's insistence on late autumn cruises; as Middleton pointed out, the inevitable result of a late cruise was a late start the next season.[2] The Western Squadron was never into the Channel in good time; fortunately, the French were rarely better.

All the same, there was a vague, though widespread, impression among people concerned with the navy that refits could have been hastened.[3] As with repairs, the yard officers were told to be less thorough in wartime. In 1779 they were ordered to, "survey...rigging, masts and yards afloat in the best manner you can without bringing them on shore and not to take out the lower masts, though they may have been on board for three years and upward". Corners were cut in other ways.[4]

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1. See Williams, p. 477; Mackesy, pp. 176-7.

2. SaP, III, 177, 15 Sep 1779, Middleton to Sandwich.

3. See Baugh, p. 334.

4. PRO, ADM 174/18, 27 Sep 1779; e.g. 174/117, 22 Jan 1782; NMM, POR/D/23, 19 Mar 1782.

However, these measures were inadequate. Rodney wrote to his wife at the end of 1779:

> It is astonishing - the neglect and slowness of the officers, both civil and military. The whole town of Plymouth and Dock declare that more work has been done here since my arrival than had been for two months before. Such is the effect of fear. They knew there was no trifling with me. 1

Yet there was little general criticism of lack of speed from the sea officers, probably because they themselves were not noted for hasty departures. "Pray hasten down the ~~send~~ Sceptre and Princess Caroline from Woolwich, and receive no excuse from the captains", wrote Middleton to Sandwich on one occasion.[2] It is notable that when a squadron was away in particularly good time, there was someone in authority on the spot. In 1778 the King was at Portsmouth, and on hearing that Byron's squadron "could not fix which day they would sail", he gave notice that:

> I shall not leave Portsmouth until Rear-Admiral Parker is sailed, and have dispensed with Admiral Pye's attendance...this has put great alacrity into all of them, Sir Hugh Palliser has since told me privately that my taking that step will make them sail many days sooner than they would else. 3

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1. Mundy, I, 215, 28 Dec 1779.

2. SaP, IV, 93, 10 Aug 1781; see also Baugh, pp. 335-6.

3. G,IV, 130, 5 May 1778; see also Correspondence of George Prince of Wales, 1770-1782 (ed) A. Aspinall, (London, 1963-7), I, 28-29.

If it was the King who hastened the sea officers at Portsmouth in 1778, it was Edward Hunt, the junior Surveyor, who acted with a sort of roving commission to hasten technical decisions for the yard officers. He spent most of the summers of 1778 and 1779 at the western yards, and was present at Plymouth when Keppel returned from Ushant. He was also at Sheerness when Parker returned from the North Sea in 1781. It was this event which Sandwich cited when he defended the performance of his administration in January 1782. He claimed that seven two-decked ships were refitted - "masted, rigged and supplied with every necessary, and were not more than a month before they again went to sea".[1] Yet this was exceptional, for not only were these ships refitted without being docked, but Middleton as well as Hunt was at the scene of operations organising extra supplies to be brought down from Woolwich and Chatham.[2] If Sandwich intended to have this example taken as typical, it was a dishonest impression to give. Most of Parker's ships were seventy-fours, and the average time for refitting a ship of this size was not far short of four months.[3]

Only a small proportion of this time was spent in dock. Between March 1778 and March 1783 every seventy-four spent an average

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1. G,V, 355, Jan 1782.

2. See SaP, IV, 92-5, 10-11 Aug 1781. There were a number of examples of ships being ordered to refit without docking; see NMM, ADM A/2740, 16 Jun 1779; A/2771, 13 Feb 1782.

3. Abstracts of Progress, 5, part 1. Between March 1778 and March 1783 the average time was 102 days.

time of three weeks in dock at each refit. Exceptionally, for ships of this size, some would spend only a day in dock. Yet the refits as a whole lasted an average of over eleven weeks; over five weeks were spent in preparing for dock, and over six weeks after the ship had been undocked.[1] The position had not changed from forty years before when a Resident Commissioner had complained that, "when any ship is ordered into the harbour to be refitted, from the time of her first coming in, to her going out again, it is generally three or four months, let her works be more or less".[2]

There was little general awareness of the cause of these delays. Partly this was because those in power neither knew nor cared much about the details of naval affairs. Parliamentary questioning was either inaccurate or partial; for instance, in May 1778, when the King was hurrying the sea officers at Portsmouth, North supposed that he was being attacked in Parliament for the delay of Parker's squadron because the ships "would be waiting for nothing but a fair wind".[3] In many cases, even the naval officers

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1. ibid. To the nearest day: 38 days before docking; 43 days after undocking. It is thus unrealistic to have expected Keppel to, "have had at least 25 ships of the line ready by the end of April, independent of the ships allotted to Byron, allowing one week after undocking to step masts and fit rigging" (Williams, p. 449).

2. Quoted in Baugh, pp. 334-5. This does not include the time at the rendezvous waiting for the ship to be manned.

3. G,IV,131, (?) 6 May 1778, to the King; also SaP, II, 44-5, 5 May 1778, Robinson to Sandwich; ibid, 63-6, 18 May 1778, Keppel to Sandwich; see also Bullocke (ed), Tomlinson Papers, p. 73, 1 Jan 1782.

in the House knew little about the civil administration.[1] The yards therefore had no spokesmen, although occasionally an officer would speak well of them. In August 1778 Keppel wrote to the Admiralty of, "the very extraordinary works that have been expedited by the officers and people in the dockyard...has been such as to merit much approbation".[2]

In the last analysis, any judgement upon the vigour of the administration and the yards during this period must stand or fall by the speed of the refitting of ships - if only because every other operation was sacrificed to this end. Once war had been declared, the nation which had its fleet on the seas first gained a considerable advantage. It has been said that one ship at the beginning of a war was worth two at the end. However, it appears that in this war the ships of the line spent a good deal of their life in harbour. During the five years of the European war, if repairs and refits are put together, all the seventy-fours, including those on foreign service, averaged one year and eighty-five days in harbour and in dock - which is one quarter of the entire war. Of this time, only 134 days, or nineteen weeks, were spent in dock.[3]

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1. See the bitter attacks by the Earl of Bristol in the Lords in April 1779 which Sandwich refuted easily (Parliamentary History, XX, 427-448).

2. Quoted in Williams, p. 457; also SaP, II, 148, 14 Aug 1778, Keppel to Sandwich; ibid, 153, 16 Aug 1778, Hunt to Sandwich; NMM, ADM B/197, 7 Aug 1778.

3. Abstracts of Progress, 5, part 1.

Why was there this delay? Why did ships spend so little time in dock in relation to that spent in harbour? There were some obvious reasons. The inaccessibility of the River and eastern yards meant that the burden of refitting the fleet fell almost totally on the two western yards, which limited the refitting capacity. Although the ships in dock were dealt with quickly enough, the small number of docks available caused an accumulation of ships which needed an overhaul. There were also greater problems than in the previous war, when Hawke, from his dominant strategic position off Ushant, sent his ships to be refitted in pairs; in the American war the yards had to deal with the Channel fleet all at one time. Another reason for delay in harbour was the considerable navigational difficulties at both the western yards, which have already been examined; delays in docking and undocking ships and in getting them in and out of harbour were bound to mount up. However, apart from these technical reasons, there were deep-seated administrative and social attitudes which contributed to delay and inefficiency in the maintenance of the fleet.

iv) The Sea Service.

The officers and men of the fighting navy had a crucial part to play in the servicing of the fleet. Much of the victualling,

manning and gunning had to be done at Spithead or Plymouth Sound, but there was also a great deal for the seamen to do in harbour. Sandwich informed the King on one occasion that the initial fitting, "will usually require a month to prepare each ship for receiving men, and at least two months more before she will be manned and ready for sea".[1] On another occasion he reflected general opinion, and a certain amount of misplaced confidence, when he assured the King at a critical point in 1781 that there was no point in sending any of the Navy Board Commissioners down to the western yards to speed the ships as they were,

> out of the shipwright's hands (except possibly a few trifling jobs afloat), their equipment depends entirely upon their captains and the Admiral of the Port, and it is certain that nothing that can be done will be omitted on their parts. 2

Relations between the civil and military sides of the service were of the utmost importance. Although, "the supremacy of the military over the civil authorities was not...any longer a matter for uncertainty", the relationship was still delicate.[3] The lack of power and ambiguous position of the Resident Commissioner meant that much had to be referred to London, and the

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1. G,III, 379, 20 Jun 1776.

2. G,V, 273, 2 Sep 1781.

3. Baugh, p. 337; also Ehrman, p. 101.

clumsiness of the organisation gave rise to much misunderstanding at the yards. The superior attitudes taken by the fighting officers were not conducive to the co-operation which was so necessary, although the blame can be laid at both sides of the service. For instance, in 1780 the Navy Board had to remind the Plymouth officers to, "give the earliest information to the commanding officer of the ships intending to be docked so that they may be got ready in time".[1] However, it was more likely to be the sea officers who were at fault. This was the opinion of Rodney late in the war, and he was at least impartial in his criticism of delays: "Sorry I am to say, that the sea officers are more to blame than the dock officers, and that my own captain is among the slow ones".[2]

The biggest single cause of delay before docking was the difficulty of clearing ships of their stores. The first problem was a lack of seamen who were supposed to clear the stores, and this was aggravated by the need to confine these men, for they were liable to desert at the slightest opportunity.[3] In spite of

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1. PRO, ADM 174/117, 25 Jan 1780.

2. Mundy, II, 179, 1 Jan 1782, to his wife.

3. See Baugh, pp. 335-6; Williams, p. 449; e.g. SaP, II, 209, 11 Nov 1778, Walsingham to Sandwich.

this considerable difficulty, the performance of the sea service could have been improved by adequate supervision by the officers. That it was inadequate is beyond dispute. For instance, in 1776 Samuel Hood, then captain of the Marlborough (74), was considerably embarrassed by an explosion on board his ship at a time when he was supposed to be supervising the clearance of its stores. In a letter written personally to Sandwich, he had to admit that he was elsewhere, and that his first lieutenant, to whom he had deputed the work, was also ashore.[1] This slack attitude lost many opportunities to hasten refits. When the capacity of Portsmouth was overstretched in the winter of 1779, Hood was furious with Pye for failing to send men to clear stores from the Royal Oak (74):

"Not a day has passed without a message being sent...to her the commanding officer, urging him to dispatch in clearing the ship, so that no blame can possibly fall on any officer of the yard".[2] In the event the ship was not cleared, and a dock was unoccupied for a fortnight because the spring tide was missed.

Delays before a ship was docked were more than matched by delays afterwards. The first fault was the lateness of the sea officers in taking up their posts. The Orpheus (32), for instance,

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1. NMM, SAN/T/7, 9 Jul 1776.

2. NMM, POR/F/17, 26 Dec 1779. The clearing of captured ships gave considerable trouble, and often the yards had to supply men to unload them (e.g. NMM, POR/D/21, 17 Aug 1778; PRO, ADM 174/18, 15, 17 Mar 1780).

was ready in August 1775 at Plymouth, but Ourry wrote, "I could wish some of her officers would come to their duty".[1] Cooks and surgeons, petty officers oppointed by the Navy Board, who were particularly important when the ship was in harbour, were frequently late.[2] As might be expected, delay in any one part of the process of refitting held up the whole process. Ourry requested the Board to order the captains to,

> take their stores out of the hulks as soon as they come out of the docks or it will be impossible to carry on the docking service as you expect, for many of them will lay alongside of the hulks four, sometimes five weeks, which in former times was never more than as many days but now they like laying alongside the hulk to do all their work. 3

The same sort of complaint came from the master of the Woolwich lighter, who said that his vessel was next to the Adamant (50) for twenty-four days. The seamen had taken out the standing rigging, "but the running...they take out only as they want to reeve it. I have applied to the Master Attendant...to desire the officers to unload us, but they do not regard him". The latter complained that the sea officers had said that, "they should keep her until they had done with her".[4]

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1. PRO, ADM 174/115, 6 Aug 1775.
2. e.g. NMM, CHA/E/33, 29 May 1780.
3. PRO, ADM 174/117, 15 Jan 1780.
4. NMM, ADM BP/4, 21 Aug 1783.

More delay was caused by the commanders of the ships which were being refitted. They had considerable control over the fitting of their ships, and it was at this point that they first came into contact with men whom they considered to be their inferiors.[1] Each of their demands was in fact a request to "bend" the rules, for each rate of ship was allowed a certain amount of stores in its establishment. Yet it was impossible to perfect a foolproof system to reduce demands. The difficulty was to impose set standards and establishments on ships which were classified very simply by rate but were very different in design and performance. Much had been done to standardise equipment, but it did not prevent a constant change in the establishments by the Navy Board, and many of the requests for stores and alterations resulted not only from the independence of the sea officers, but from their ignorance of the regulations. This was particularly so of the junior officers. The flood of requests moderated under the pressure of war, but in 1781 the Board still found it necessary to direct that the orders affecting the establishments of all ships should be hung in the office of the Clerk of the Cheque at every yard.[2] There were plenty of orders. Between 1774 and 1784 there were more

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1. Only the order to "freize and trophy" (repainting the decorations on the bow and stern) a flagship had to come from the Admiralty, but this luxury was eventually dispensed with as the war developed (PRO, ADM 106/2592, 8 Feb 1775; NMM, ADM A/2688, 10 Feb 1775).

2. SO(a), 1103, 15 Nov 1781.

than eighty Standing Orders changing the allowance of stores and equipment for ships, and forty more altered the allowance of moveable stores issued to Boatswains and Carpenters.[1]

In spite of these improvements, there was still a great deal of trouble caused by requests from commanders. The Resident Commissioner dealt with as many as he could without applying to the Navy Board, but, as in the previous century, he "either submitted to them or quarrelled with them so long as they remained in harbour".[2] "You cannot be strangers to the constant applications of the commanders of His Majesty's ships", wrote Ourry to the Board.[3] The usual requests were for extra stores, such as azimuth compasses, extra lanterns or spars. In some cases the commanders asked for permission to leave behind stores which they considered superfluous.[4]

The most contentious issues between commanders and the civil administration concerned the size of cabins and the amount of iron ballast that was allowed to each ship. Both these problems stemmed directly from variations in design. The cabins within each

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1. SO(a), SO(b).
2. Ehrman, p. 101.
3. PRO, ADM 174/117, 17 Sep 1780.
4. e.g. PRO, ADM 106/2592, 16 May 1775; NMM, POR/D/21, 29 Dec 1778.

rate varied considerably. Some, Sandwich noted in 1771, were "commodious and proper" and others "very confined and by no means sufficient", and he intended to make the cabins uniform within each class; "this, and this only, can prevent the numberless applications and discontents upon this head, which will ever continue whilst some are good, some bad, and no fixed rule observed".[1] To bring order to this confusion was difficult in a short space of time. When Commissioner Martin was asked for suggestions for improvements at the end of the war he made the same complaint; there should be a "certain" rule for each class, after which, "no deviation should be allowed".[2]

The requests for iron ballast gave the Resident Commissioners much trouble, especially as ballast had to be put into a ship before stores and victuals.[3] The captains liked this material much better that shingle ballast, for it took up less space and was cleaner and healthier. There was a shortage from 1779,[4] and the Navy Board became convinced that ballast was not being stowed effectively; it therefore gave orders for a special

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1. PRO, ADM 7/659, fo. 70.

2. NMM, POR/F/18, 28 Mar 1783; also PRO, ADM 174/17, 2 Dec 1776; ADM 174/117, 7 Nov 1780.

3. e.g. PRO, ADM 174/117, 12, 17 Sep 1780.

4. See BL, I, 269, 5 Sep 1779, Douglas to Middleton; also NMM, POR/F/17, 21 Aug 1778.

plan of storage for each class of ship, which were to be inspected by the yard officers. It was an impractical solution; the officers at Portsmouth found that several of the commanders,

> disapprove of stowing the iron ballast according to the plan, and hastily reply with a seeming warmth... 'who is to dictate to me the stowage of my ship's hold, am I not the commander of that ship, and am I not answerable for all the consequences?'

The yard officers concluded that their, "great experience...of the tempers and dispositions of the captains and officers of the fleet"...would produce..."great umbrage and expose us to insult and abuse and will produce disputes and quarrel which may be attended with ill consequence!".[1] Although the Navy Board failed in this attempt at control, it laid down a more detailed establishment for each class of ship. The Resident Commissioners were in future "to decline all applications on this head".[2]

It was this sort of situation which led to occasional open conflict between the civil and the fighting officers. When William Nicholson, one of the Master Attendants at Portsmouth, went

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1. NMM, POR/D/22, 24 Sep 1779; also PRO, ADM 174/116, 24 Sep 1779.

2. NMM, POR/G/1, 13 July 1781. The Navy Board wrote on one occasion: "The opinion of Captains differ so much upon this matter that we have been frequently applied to by one captain to receive into store what a former has desired and it was to prevent the confusion occasioned by these alterations that the regulation was settled". (NMM, Roddam Papers, uncatalogued, 12 Aug 1778, Navy Board to Roddam).

to ask the lieutenant of the Wasp sloop to help salvage a yard lighter which had been assigned to that ship:

> His answer..(in words which we are ashamed to repeat): Damn both the Masters Attendant for ~~a set of~~ rascals. Was he a Lieutenant in the service to be dictated by them a set of rascals of boatswains? He was a gentleman, and had a gentleman's education ...(and) that he was accountable to... Captain Bligh his captain, and that he did not care for anybody else. 1

Nevertheless, the lieutenant was forced to apologise. Yard craft were often a bone of contention. When a tender was lost at Portsmouth in 1779, the Master Attendant complained that the sea officers, "never acquaint us therewith but will rather endeavour to conceal it from us than to acknowledge it".[2]

It would be mistaken to give the impression that friction was always in the air, for there were many genuine applications.[3] In general, the Navy Board gave the appeals for extra stores and alterations a fair hearing, although undoubtedly the more senior the captain was the more likely he was to have a request granted.

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1. NMM, POR/D/20, 18 Mar 1776; see also NMM, Roddam Papers, uncatalogued, 16 Jun 1779. For some rumbustious language in such an incident, see ADM BP/2, 22 Mar 1781.

2. NMM, POR/D/21, 8, 14 Feb 1779; also NMM, ADM B/195, 23, 28 Jan 1778; ADM A/2790, 25, 29 Aug 1783; ADM BP/4, 21 Aug 1783.

3. e.g. NMM, POR/F/17, 11 Feb 1779; POR/D/22, 24 May 1780; PRO, ADM 95/95, 13, 22 Ap 1780; ADM 174/18, 11 Jul 1780; 174/19, 19 Ap 1782 and many other examples.

An appeal to the Admiralty could also remove Navy Board and yard objections. The western yards, and especially Plymouth, suffered most from the demands of the sea officers. The political situation and jealousies in the Channel Fleet made things worse. Sometimes the commanders were incredibly tactless. Sir Robert Harland, taking over the Royal George (100) at Plymouth, wrote directly to the Master Shipwright for some alterations to be made to the ship. Harland, reported Ourry, "did not think proper to take notice of me in this business, who am the chief person concerned as the ship is not commissioned".[1] However, by the next year he had more complaint to make:

> I have had more trouble and discontent in refitting the few ships that ~~have~~ arrived here from Sir Charles Hardy's fleet than with all the fleet last year. The irregularity of the demands and constant shipping off stores is amazing and no possibility of pleasing. 2

A major cause of delay in getting a fleet to sea lay with the inefficiency of the sea service, which was exacerbated by a fractious party spirit. It was at this point that the status and social ambiguities within the service most weakened administrative efficiency. This was a problem which beset the service through the century, and efficiency was not to be radically improved until the

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1. PRO, ADM 174/116, 19 Jul 1778.
2. PRO, ADM 174/116, 1 Aug 1779.

independence of the commanders had been curbed, and civil administration made more powerful. Nevertheless, it must be remembered that not only the dockyards were involved in the complex business of fitting out a ship. The captain (if he was present) was responsible for co-ordinating the manning, gunning and victualling of his vessel, and was therefore dealing with three different boards. That few sea captains understood the vagaries and difficulties of each branch is not surprising; and it is understandable that the blame for delay was imputed to the civil administration rather than to the fighting side of the service, and that the frustrations of the commanders gave these services, and especially the dockyards, a name for corruption and inefficiency.

v) The Civil Administration.

The performance of the Admiralty, Navy Board and yard officers in the management of the fleet during this war may be judged by their success in fulfilling four essential tasks. Firstly, it was important that each yard was given a clear statement of what it was to do in good time. Equally critical was the need to order the early refitting of the ships which were most ready to go to sea.

Finally, it was vital that the load of work should be distributed as evenly as possible throughout the six yards, and that manpower should be deployed in the most effective way. Success and failure in dealing with these administrative problems depended initially upon the relationship of the two boards and particularly in the capacity of the professional board.

It is possible to discern a real improvement in the direction of the yards from the central administration during this war. The role and ability of Middleton in the handling of the fleet was of vital importance. It was one aspect of the administration about which he did not exude confidence; at one point he wrote to Sandwich that the business had become, "so comprehensive and so complicated that, although I give up my whole time and attention to it, yet I find the greatest difficulty in keeping it under and at times I think it will distract my brain".[1] His effort was indeed prodigious, for in spite of the over-centralisation of the Navy Board and the heavy weight of business with which he had to deal, directions from the Board were on the whole clear and well thought out. For long there had been the complaint that the Admiralty ordered ships to be made ready for sea without indicating which ships were to have priority. Loose phrases such as "with all dispatch" or "as soon as maybe" were

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1. SaP, III, 178, 15 Sep 1779.

employed, so that the orders, transmitted through an unco-operative Navy Board, gave little directions to the yards.[1] Middleton, however, enjoyed two advantages.[2] His industry ensured that he kept up with the business of the yards, while at the same time he had the confidence and co-operation of the Admiralty.

Increased information from above was matched by better information from the yards. This was the result of Middleton insisting upon realistic Progresses. These had always been a problem. Forty years before they had been described as a "meer farce, and really amuses more than satisfies".[3] A Standing Order of 1771 exhorted the officers to accuracy, "notwithstanding our repeated directions orders to you on this subject".[4] The appointment of Middleton as Comptroller immediately preceded a concerted effort to obtain proper information at the Navy Office, and any contradictions in the Progresses were immediately pounced on. In 1779 the officers were ordered not to insert a completion date until they were certain of it, although they were to report provisionally.[5] In spite of the difficulty of breaking years of

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1. See Baugh, p. 339.

2. For examples of statements of priority see e.g. PRO, ADM 174/116, 23 Jun 1779; 174/117, 24, 29 Nov 1782; 174/18, 9 Jun, 18 Aug 1780; NMM, POR/D/22, 11 Feb 1780.

3. Quoted in Baugh, p. 339.

4. SO(a), 576, 31 Aug 1771. Orders had been issued repeatedly on this theme (PRO, IND 9315, 10 Jan 1717, 16 Dec 1726, 12 Jan 1757. A printed form was first issued on 30 Jul 1729.

5. e.g. NMM, CHA/E/33, 1 Dec 1778; POR/D/21, 31 Dec 1778; SO(a), 923, 10 Nov 1779.

habit, the Comptroller increased his hold over the yards; most of the time, at least, he knew which ships were in which dock, although he had to resign himself to the fact that during hostilities decisions had to be taken on the spot. Any decision which he considered wrong resulted in the officers being accused of "flagrant neglect" or "inexcusable conduct", although they usually produced good enough reasons for their decisions.[1]

However, in spite of much improvement and effort by Middleton, there were still many shortcomings. Plans could very easily be upset. Orders were held up, and the Admiralty often changed its mind. For instance, the Antelope (50) was ordered to be laid up on 4th May 1778, then to be fitted for sea by the 26th of the same month, but by July it was ordered to be made into a hulk.[2] There were many other examples, although they were mainly confined to the early part of the war when French intentions were uncertain. What was far more likely to happen was that ships would require more work on them than was suspected. When the

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1. e.g. PRO, ADM 174/18, 31 Dec 1779, 10 Jan 1780; NMM, POR/D/23, 12 Aug, 22 Dec 1782. In one instance, the Plymouth officers were reprimanded for repairing the Boyne (70), "when it appeared she was so bad and particularly as she never was a ship of character" (PRO, ADM 174/117, 22 Nov 1782; 174/19, 8 Jan 1783).

2. PRO, ADM 174/118, 11 Feb 1783; ADM 95/95, 4, 26 May, 18 Jul 1778.

Raisonnable (64) was docked in 1775,

> the caulkers, on trying their worth, discovered two pieces of...blackstrake...so defective as to require shifting...when, on taking them off found several pieces of the main whale under them very bad (and) have already taken off several pieces and are come down to the lower strake of the whale, which is so rotten as...to require ~~shifting~~ being taken off. 1

It was this sort of thing which played havoc with accurate schedules and estimates.

Apart from this, there remained three problems which led to frequent delay and inefficiency, and which the civil administration failed to solve. The first was the unequal distribution of work, and the overloading of Portsmouth and Plymouth. The principle that Chatham was to repair ships, and that Sheerness was to refit small ships, had long been accepted. It was therefore agreed that small ships should go to the eastern yards to be refitted, leaving the western yards, with their larger facilities, as the main refitting bases for capital ships. It never worked in practice. In 1779 the Navy Board wrote to the Admiralty that,

> as the number of frigates and smaller vessels paid off and refitted at the Western ports during...last summer has occupied more than one half of the shipwrights of the yards and considerably impeded the bringing on the larger ships...and...we...propose...that they go to the eastern yards. 2

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1. PRO, ADM 106/1230, 4 Jun 1775, Plymouth Officers to the Navy Board.

2. NMM, ADM B/199, 6 Sep 1779; see also B/197, 3 Nov 1778.

Middleton added force to the proposal in a private letter to the First Lord. He requested that the frigates and smaller vessels, "may never be paid off nor refitted at the western ports without consulting the Navy Board".[1] In spite of this protest, Portsmouth and its harbour was stretched to the limit in the next few months. The problem was never solved. In late 1782 the Navy Board still had to write to its new masters, "there are at this time no less than 379 working shipwrights employed on small craft at Plymouth, and which if continued must render that yard of little use in supporting the line of battleships".[2]

The reason for this was that the yards were badly sited for the conduct of this war. Since the eastern yards were so inaccessible, there was a constant temptation for the Admiralty to order small ships to be refitted at the western yards because of time that ships took to reach and return from the eastern yards. Unfortunately, this was a cumulative problem. Up to 1779 the eastern yards, and especially Sheerness, did fit out the greater number of sloops. However, by the time these small ships reached the Channel they frequently required more stores from the western yards; in effect they had to be fitted out twice. Deptford fitted out a great number of small craft, mainly sloops, in the

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1. SaP, III, 178, 15 Sep 1779.

2. NMM, ADM BP/3, 21 Nov 1782.

early part of the war, since large number of these ships came from the River, but the yard was too inaccessible for routine refitting. Vessels other than sloops were usually overhauled at the eastern yards; for instance, fireships were mostly surveyed and fitted at the Thames yards, but once hostilities commenced, there was not time to send them this far, and Plymouth handled them after the initial fitting out. The same pattern can be discerned with bomb vessels and yachts. There was little pattern in the refitting of brigs and cutters, for they tended to be used for local services, and therefore were overhauled near their base. The same applied to naval transports, armed ships or captured vessels.[1] Thus the yards worked at a constant disadvantage in servicing the fleet in wartime, and Middleton was not helped by the failure of the Admiralty to appreciate the problem.

The second criticism that can be made of the civil administration, at both Navy Board and yard level, was that it failed to grapple with the problem of deployment of labour. Commissioner Hughes of Portsmouth put his finger on the problem in the 1740's: "while 50 men are employ'd on one ship, 60 on another, 70 on a third...which...is our present case...you may be assured, we shall always be embarrassed with work".[2] It was, as Baugh points

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1. This information comes from many scattered references in the Navy Board warrants to the yards (PRO, ADM 95/95-6).

2. Quoted in Baugh, p. 335.

out, "a failure of management, a failure to plan for rapid output".[1] Manpower was wasted through inadequate planning and a too-ready acceptance of precedent. It is true that it was difficult to attract a sufficient labour force, but this made it even more important to use the sometimes scarce labour resources more effectively.

The most serious weakness was the size of the Master Shipwright's force in relation to the workmen and seamen under the Master Attendant, with the result that the latter's department was often behind schedule. In 1755 the Master Attendant at Plymouth had been summarily dismissed for the same "offence" - a decision which was governed by the current assumption that "it was the man rather than the system which was likely to be at fault".[2] In this period there was similar trouble at Portsmouth, where the sail-makers were always behind with their work. Although no officer was dismissed, this situation led to some acrimonious correspondence between the yards and the Navy Board. In answer to a complaint of May 1777, the Master Attendants at Portsmouth wrote with the very reasonable excuse that they could not keep pace with the Master Shipwright's department because, "it frequently happens ships come into port which require but little fitting in the Builder's depart-

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1. ibid.

2. R. Middleton, "The Administration of Pitt and Newcastle", p. 139.

ment, and may happen to want the greatest part of their sails".[1] In 1780 the same complaints were made by the Board, who remarked that "the ships in general fitted at Portsmouth are more behind-hand on the Master Attendant's part than at any other port". However, the officers claimed that, "it has not yet appeared that any ship or ships have been detained...by any backwardness in the Master Attendant's department".[2]

The consequence was that certain sections of the labour force were overworked. It was found in late 1778 that the sail-makers at Portsmouth had worked as much extra as possible and on every Sunday between May and September, and as a result the Navy Board ordered Sunday working to be prohibited except in cases of absolute emergency, and in future Navy Board permission had to be given for it.[3] Later Middleton was to claim that, "in the heat of the American War...we never worked on Sundays in the dockyards, except on very extraordinary cases, such as docking and undocking ships when the spring tides offered on that day".[4] His memory, however, failed him, for in the two western yards, at least, some

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1. NMM, POR/D/20, 3 May 1777; also POR/D/21, 22 May 1778.

2. NMM, POR/D/22, 3 Mar 1780; see also ADM B/195, 25 Dec 1777; POR/D/23, 23 Jan 1783, SO(b), 298, 22 Ap 1784.

3. NMM, POR/D/21, 17 Sep 1778; POR/F/17, 20 Sep 1778; POR/G/1, 12 Nov 1778; CHA/E/33, 13 Nov 1778; PRO, ADM 174/116, 15 Nov 1778. Sailmakers were also very pressed at times at Deptford (ADM 95/95, 14 May, 2, 4 Jul 1778).

4. BL, III, 36, (May 1804), Middleton to Dundas.

part of the workforce worked on every Sunday between 1778 and 1782. Too many ships had to be made ready in haste, especially by shipwrights who had to work afloat.[1] The Resident Commissioners were careful to inform the Navy Board of all Sunday working. While the men welcomed the extra pay, it was clear, as Middleton commented, that, "nothing is gained by it in forwarding the service".[2] The men required the rest on Sundays, and no workforce could work effectively seven days a week throughout the year.

The same arguments applied to the indiscriminate giving of extra work. Only daylight limited the hours that the men worked at the height of the war; the sailmakers in most yards were working "double days" as early as 1776, and during the war by candlelight.[3] Most of the problem was caused by the shortage of skilled labour, particularly shipwrights, of which the administration was only too well aware. Nevertheless, the situation could have been eased by the hiring of more unskilled workers, but the Board were reluctant to do this for reasons of precedent, and because it failed to take the effectiveness of the workforce as a whole into consideration.

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1. e.g. NMM, POR/F/17, 7 Jul 1778, 22 Aug 1779; PRO, ADM 174/117, 12 Sep 1780, 11 Feb 1781; 174/117, 12 Dec 1779, 5 Sep 1780; 174/19, 27 Mar 1782.

2. This prohibiting order often put the Resident Commissioners in a difficult position with sea officers; e.g. PRO, ADM 174/116, 1, 8 Aug 1779; 174/117, 30 Ap 1780.

3. e.g. PRO, ADM 174/17, 28 Nov 1776, 9 Nov 1778; 174/117, 24 Sep 1782; 174/17, 28 Aug 1776; NMM, CHA/E/33, 2 Oct 1781.

For instance, when the shipwrights were put on to extra work, it was often necessary to give other workers extra work to keep pace with them; there was little method about doing this.[1] "Extra" should have been kept for real emergencies; if it had, output and efficiency would have increased.[2]

The third major problem had its roots in a lack of Admiralty understanding of yard difficulties. This was the large number of merchant and foreign ships which came to the yards to be repaired or to be supplied with stores. This seems to have been totally unnecessary, and indeed the readiness with which the Admiralty listened to requests from merchants who wished to make use of yard facilities is hard to understand. It was an open invitation to abuse. The number of ships of the East India Company which made use of yard facilities during this period is remarkable. The owners of large vessels often found it difficult to find private docks of sufficient size;[3] moreover, they knew that there were good quality stores to be obtained at the yards. It was difficult to refuse aid to a vessel in distress, but there were a suspiciously large number of merchants similar to the owner

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1. e.g. PRO, ADM 106/2592, 12 May 1775; NMM, POR/D/21, 5 May 1778. After the war Middleton tried to regulate this (SO(b), 303, 13 Ap 1784).

2. See PRO, ADM 174/17, 3 Aug 1778; 174/117, 16 May 1780.

3. See Baugh, pp. 339-340n.

of one ship who claimed that, "I had to run my ship ashore by Sheerness yard".[1]

The Navy Board strongly condemned the practice of allowing ships other than His Majesty's into the yards, and in late 1774 their hand was strengthened by petitions from the merchant yards of Plymouth and of the Thames, complaining that the King's yards were taking away their business. The Board submitted the Plymouth petition to the Admiralty, adding that the continuation of the practice could only result in "the frequent interruptions to the King's service...We think it would be proper to refuse such requests in future".[2] Although this stand had some effect, it was not lasting. Between the time of this petition and the end of the war, The Admiralty allowed at least thirty-four ships to make use of the royal yards, most of them at the height of the European war.[3]

This was a heavy burden on the yards. Although the Admiralty always stipulated that these ships were not to interfere with the works in hand, this was impractical, since nearly every one required docking. At the time of the refitting of Keppel's

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1. NMM, CHA/M/3, 20 Dec 1770. There was no doubt a great deal of abuse, which did not reach the ears of the central administration (e.g. PRO, ADM 174/116, 19 May 1778; 174/117, 9 Sep 1781).

2. NMM, ADM B/189, 28 Dec 1774; ADM A/2689, 10,24 Feb 1775; see also PRO, ADM 174/18, 4 Mar 1779.

3. e.g. NMM, ADM A/2686-2794; ADM B/190, 21 Sep 1775; B/199, 22 May, 21 Jun 1779; POR/F/17, 31 Dec 1779; PRO, ADM 174/116, 22 Mar 1778.

fleet in August 1778, Ourry wrote to the Navy Board that the yard was short of some of its shipwrights because of "the directions we received for supplying hands to a Dutch and two Swedish ships".[1] It was an extraordinary situation; yet the Admiralty too had its difficulties. Often there was a foreign squadron - usually Russian or Dutch - to be supplied with stores, while in the case of foreign ships official representations were made to the Admiralty from a diplomatic level.[2] As Ourry pointed out before the war, this made nonsense of any ideas of security. He reported that foreign ships paid the King's pilots well to show them the marks, and that they came and went into the Hamoaze without anyone's leave.[3]

The other additional burden was the work which was done on the ships upon which the navy depended; these included hired armed ships (which gave a great deal of trouble because of their ambiguous status), merchant ships which were in need of repair and were holding up a convoy, or those which had been run down by ships belonging to the navy and which the yards were morally obliged to repair.[4] Following the lead of the Navy Board, the Resident

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1. PRO, ADM 174/116, 1 Aug 1778.

2. Of the 34 ships aided, 21 were foreign. One example was the Portuguese ship, St. Nicholas, which the Admiralty was asked to help repair by the "Chevalier De Pinto, Envoy Extraordinary". The work was to be done, as usual, without "great detriment to the public service" (NMM, ADM A/2755, 4 Sep 1780; PRO, ADM 174/18, 5 Sep 1780).

3. PRO, ADM 174/115, 11 Ap 1775.

4. e.g. NMM, POR/F/16, 6 Jan 1776, 23 Feb 1777; POR/F/17, 29 May 1778; PRO, ADM 174/116, 22 Jan 1779, 5 Sep 1779; 174/117, 10, 17 Oct 1780.

Commissioners were very loathe to use their exigency powers to order merchant ships to be repaired in the yards. However, there was very often a need for flexibility. The only time when Hood lost his temper with the Board when he was at Portsmouth was when the Clerk of the Cheque refused to supply a mast to a storeship, thus holding up the East India convoy on its way to the Thames.[1] Nevertheless, the Navy Board reacted quickly over any service rendered to private ships without its prior permission. In answer to one such query the normally equable Ourry replied with irritation, "I am surprised you should think I would listen to any applications that might distress the stores here".[2]

It is not surprising that the Navy Board was particularly jealous of its powers in these cases. Essentially the successful handling of the fleet consisted of the marrying up of strategic and political necessity with what was physically and administratively possible. In order to put forward what was possible, the Navy Board had to be forceful. It failed to control completely the Admiralty in its handling of ships; a much stricter control of private ships using the yards would have helped the hard-pressed administration considerably. The maintenance of the

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1. NMM, POR/F/17, 28 Dec 1779.
2. PRO, ADM 174/117, 17 Oct 1780.

numbers and effectiveness of the fleet during hostilities was one of the most difficult administrative tasks of the time. With only two of the six yards conveniently located, insufficient manpower and facilities and a temperamental sea service to provide for, the overworked Navy Board had a formidable task. Yet in spite of its failure to solve or even identify a number of problems, the performance of the administration and the yards was creditable. This was built on the solid foundation of the supreme competence of the Comptroller and the confidence which the First Lord placed in him. It was this factor which overcame the split in control between the two boards in London which was always on hand to hinder a strong and vigorous administration.

Chapter Seven. Conclusion.

The dockyard organisation was only one of the elements of British seapower in the eighteenth century; when added to the others - the professional officer corps, the seamen and the rest of the civil administration - the result was the most formidable navy of the age. These factors of naval power rested on the foundation of a general willingness and ability in the country to finance the navy adequately. They were interdependent, and it is difficult to say which of them was the most important, although there has been, as Daniel Baugh points out, "a tendency of naval historians to portray a dedicated body of sea officers struggling successfully with an inferior fighting instrument which had been prepared for them by corrupt and negligent administrators ashore".[1]

A brief examination of the performance of the navy in the War of American Independence shows that this view is superficial. Firstly, its commanders were either too elderly or too concerned with their reputation (or both) to bring success. The reason for this, and for the

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1. Baugh, p. 500.

particularly bitter edge to the usual personal feuds in the fleet, was that political opinion was divided over the aims of this war, and several admirals of known ability refused to serve. The First Lord came to be seen, especially after the Keppel-Palliser affair, as less than impartial, and this undermined morale in the fleet. Sandwich's position was weak in two other ways. Firstly, he was isolated in the Cabinet, and was especially estranged from Lord George Germain; this was a vital relationship, since Germain was Secretary of State for the American Colonies, and therefore in overall charge of the war. Secondly, the navy had to operate from a position of strategic weakness, and Sandwich's approach to this difficult problem was marked by overcaution and lack of imagination. It is therefore not surprising that when he came to prepare his defence of his administration at the beginning of 1782, he laid heavy emphasis on the administrative measures, most of which centred on the dockyards, as the most successful aspect of his eleven years in office.

It is difficult to measure the effect of any one man, even if he was the First Lord of the Admiralty, upon an organisation as large and intricate as the dockyards, and it is possible to argue, unless a close examination is undertaken, that Sandwich left them very much as he found them. Involving well over ten thousand men in government employment, and many more

indirectly, of differing social levels and skills, the yards were shot through with inefficiency and enervating custom. They lacked adequate facilities, proper orders and instructions, a fair and efficient payment and promotion system and a coherent policy to attract a sufficient workforce. Only two of the six yards were strategically placed to maintain the fleet when speed in this work became all-important. Although they were regarded as self-sufficient in repairing and refitting the fleet, in wartime the fleet had to be refitted almost to the exclusion of repairs and rebuilding. They did produce ships in peacetime, but this was not their primary function, and there was heavy reliance on private yards. By the time of the American war, the royal dockyards were properly equipped for dealing with the wars of the first half of the century, but not of the second.

The structure of the organisation was weakened in the first instance by the split in control between the two boards in London; this hindered directions and initiative, and was always potentially divisive. However good the relations between the First Lord and Comptroller, there was a constant underlying tension between the two arms of the service. Although the Navy Board was not particularly wayward over yard matters, it could be obstructive; it often had good reason to be. The second weakness was the lack of real control of the

yards by the professional board. This stemmed mainly from the absence of well-defined responsibilities and relationships through clear and standardised instructions, and a lack of accuracy and speed in the operations of the six yards. Nevertheless, the power of the central administration did not have to be created, for it was, although hidden in confusion, essentially there. Evidence of its existence was provided by the over-centralisation of command, and by the reluctance of the Navy Board to delegate authority to the yards themselves.

As a result, power and responsibility were not spread evenly through the organisation. This inhibited efficiency in two ways. The first was the damaging independence of the yard officers. Under-supervised by the Resident Commissioners, they exerted a large amount of power and influence at a local level while enjoying relative immunity from control by their superiors in London. They remained a potent force for the status quo. The promotion system was largely in their hands, and recommendations of those workmen who were to receive the benefit of apprentices were under their control. Their independence meant that there was little the Navy Board could do to overcome the slackness in making the accounts and returns that had to be sent to the Navy Office.

Nevertheless, although the yard officers could be,and frequently were,blamed for laxity, individuals worked extremely hard, especially at the western yards, and there is no doubt that their offices, like the Navy Office itself, were undermanned.

Secondly, efficiency was hindered by the lack of co-operation and trust between the Navy Board and the yard officers. Middleton was contemptuous; over the reception of stores, he considered that,

> such a field for peculation...might be trying enough for men of liberal characters and circumstances..(but).. it is..impolitic and indiscrete to throw pecuniary temptations before men whose education and habits have been confined and confirmed within the walls of a dockyard. 1

This distrust even extended to the Resident Commissioners who were members of the Board, and showed itself in the Board's encouragement of anonymous letters. The problem went hand in hand with the Board's reluctance to sanction expenditure because of the fear of setting a precedent. Although credit must be given for the long-term improvement of the facilities of the western yards in the 1760's and 1770's, it was still the short-term attitude of the Board to allow nothing that had

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1. NMM, MS66/086, Observations on the Navy Board Department.

not been allowed before. In wartime this led to delay, particularly through the Board's failure to attach sufficient weight to the officers' representations for extra labour, extra stores and an adequate number of craft to service the fleet.

It was not only a regard for economy which held back an expansion of the workforce, but also a fear of not being able to disestablish posts once they had been created. In spite of this, the civil administration was forced to establish eighty-five new positions between 1774 and 1783. Fifty-five of these were clerkships, although even the Navy Board had to expand by one more Surveyor and three more commissioners.[1] Later the administration had difficulty in getting rid of the posts which it considered unnecessary in peacetime; the chief obstacle was the current conception of office as a piece of property owned by the incumbent. This attitude permeated the whole organisation, and many of the prevailing customs and habits can be traced back to it.[2] For instance, the stores in the charge of the Storekeeper were subject to no official survey because the office, and therefore the stores, were, in

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1. NMM, ADM BP/4, 8 Dec 1783.

2. There were signs of a change in attitude. Of the Treasurers of the Navy at this time, J.E.D. Binney notes, "a new conception...accidentally being bought into being - that of an impersonalised and continuing Treasurership, from time to time executed by a succession of individuals" (Binney, p. 148).

effect, the officer's property. The same idea lay behind the individual ownership of the apprentices' indentures, and the payment of premiums by the yard clerks to their officers on appointment; in turn this fostered the attitude among the clerks that their payment of the premium had to be recouped, and prevented vigour being expended upon naval business rather than an efficient administration of each individual's fee-taking. It was also behind the difficulty of getting officers, clerks and men to apply for superannuation. More than anything, it gave the yard officers permanence; it underpinned their independence. To a large extent, it gave them power without responsibility.

Yet in spite of their influence in the yards, their control over the workforce as a whole was limited. It was unusual in the eighteenth century to have a large body of men who had to be handled with a light rein; as the strike of 1775 showed, the shipwrights were a unified and powerful force, and aware of their importance. Yet if there was little discipline, there was little incentive for the men to work hard. The only attraction of working in the yards was the exceptional security that they offered, and this was hardly the way in which the pace of work was going to be quickened. The antiquated system of payment played an important part in the shaping of attitudes; Sandwich's attempt at introducing task work identified the

problem if it did not solve it. However, apart from the discouragingly low pay, the most pernicious effect of the system was the way in which it linked officers and men, primarily through the arrangements about apprenticeship, to give them a personal interest over and above the basic aims of the service. The dockyards had now become a large-scale organisation. What were needed were fair and impersonal judgements in the administration of personnel, particularly in the matter of promotions. Most of those with key positions in the dockyards were protected by custom from arbitrary dismissal; but at the same time, while they could not go down, they could not go up either. In such a situation, incentive and hard work did not flourish.

These criticisms are not made entirely from the hindsight offered by the twentieth century, for they were voiced soon after the war. The sixth report of the Commissioners on Fees recommended an increased and rational salary and wage structure, and also the establishment of more regular, formal and impersonal relationships between the offices and individuals within the yards. Its ideas were very sound, and remarkably in line with modern bureaucratic practice. Here the Commission was strongly influenced by Middleton. His greatest administrative attribute lay in his being able to raise

his head above the crushing weight of day-to-day affairs and see where the weaknesses in the organisation were. From this point he was able to plan measures over a number of years to set things right, although many chances were lost after the war when he met with the twin obstacles of Howe at the Admiralty and a government unwilling to implement the recommendations of the Commission on Fees.

Nevertheless, Middleton's impact on the dockyards was considerable. In his first six months in office, for instance, sixty-five Standing Orders were issued to the yards, compared to eighteen in the previous six months. Although he was not immediately successful, he was prepared to undertake, at one of the busiest points of the war, the reorganisation of the issue and accounting for stores, and the improvement of the methods of preserving masts; he also issued important orders concerning promotion and apprentices. At the same time he was dealing with coppering and the difficulties caused by the cargoes of neutral ships. Nor was this impetus lost until well into the next decade; the efficiency of the mobilisation of 1793 bore witness to his success.

Middleton's achievements were built on the foundations laid by Sandwich's efforts. When the Comptroller

took up his office an atmosphere favourable to reform had already been created. Although the First Lord had tried and failed with task work, he had been successful with the extension of the superannuation scheme, and had seen that it had worked properly. He had taken a strong interest in the yards, and on his Visitations had ensured that many improvements in the facilities had been made. By implication, he inspected the work of the Navy Board at the same time, and ensured that this board's administration was vigorous. Once the war had started, his appreciation of Middleton's energy and skill, his ignoring of the Comptroller's impertinence and his firm but tactful handling of the latter's attempts at extending his influence did much to foster a unity in the central administration which was essential for efficiency.

Middleton, as Comptroller of the professional board, was, of course, in a better position to make an impression on the dockyard organisation. He was also there at a more opportune time than Sandwich, for the country had yet to be shaken by defeat when the latter became First Lord. The Comptroller's alliance with Pitt and the readiness with which the Prime Minister listened to demands for money contrasted with the situation between Sandwich and North. Yet the effects of this impression did not long outlast Middleton's stay at the Navy Office. In the vaguely-defined relations of

the civil administration, smooth working depended upon respect and good personal relationships rather than by bullying and orders. It was to be expected that the Comptroller would antagonise and infuriate, for change had to be forced rather than encouraged. Over and above this, he was a difficult colleague and a hard master; his impetuosity and lack of tact, although an essential part of his energy and drive, led him into many unnecessary disagreements.

Up to the outbreak of the American War years of victory made for complacency in a country which was hostile to strong administration. "The average eighteenth-century Englishman...preferred liberty to governmental efficiency";[1] his remedy for inefficiency was to root out corruption and bribery, and this underlined the belief that it was the individual, rather than the system, who was to blame for any deficiencies. It was only just beginning to be realised that it might be the organisation itself which was at fault and not the individuals within it. The individual was important because of the delay that could occur when friction worked upon the delicate framework of the civil administration, but it was the inefficiency of the system rather than the petty corruption of individuals that was the chief problem by this

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1. Baugh, p. 504.

time. A hundred years before it was the fleet which suffered if officials lined their pockets because the financial organisation of the country was weak; now it was merely the Treasury which lost money. Posterity has tended to judge eighteenth-century administration on its own terms, and has concluded that the problems of the dockyards began, and probably ended, with corruption.

During the century the dockyard organisation had grown, although the size of the fleet had outstripped the capacity of the yards to maintain it efficiently. At the same time the organisation had failed to adapt to its own growth; it had expanded, but it had not developed. In previous wars the solution for incompetence had been to dismiss an officer, and for delay to set the workforce on extra work; now the root problem was seen to be more complicated. Even Middleton, with his grasp of affairs, found it, "surprising how the whole has been kept forward: and when I say that I was very frequently in danger of sinking under it, I very imperfectly describe my own situation".[1] He was struggling to produce and maintain a fleet of nineteenth-century proportions, with colleagues

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1. NMM, MS66/086, Observations on the Navy Board Department.

imbued with eighteenth-century attitudes within an administrative machine which had not basically changed since the seventeenth century. The jolt of the American war shook the yards as much as the rest of the country, and they benefitted from the movement for economy and the growing belief in the need for honesty and strong administration. This change took many years, and in the meantime the dockyards ran on the old lines. The trouble was of institutions, not of individuals; the clog to efficiency lay in the millstone of tradition and precedent. Many, though not all, of the men engaged in the largest and most consistently difficult administrative and technological task of the time emerge with considerable credit.

Glossary

anchor stock: "a long beam of oak...fixed transversely with the flukes" (Falconer, p. 9).

azimuth compass: "an instrument employed to discover the magnetic azimuth or amplitude of any heavenly object...to find the exact variation of the magnetic needle" (Falconer, p. 25).

blackstrake: together with the wales, they formed the planking of a ship's sides (see Falconer, pp. 36, 311).

block: one or more pulleys mounted in a case. 992 were used in the rigging of a seventy-four gun ship.

bounty money: paid to volunteer seamen for signing on.

braces and pintles: the hinges between a rudder and the ship's hull; the brace was the part attached to the rudder, and the pintle (or "pintail") to the ship.

breaming and graving: to bream a ship was to burn off the filth from a ship's bottom after a long time at sea, which was done by holding lighted faggots or furze to the tallow and sulphur which had previously been put on the underside of the ship. Graving referred more generally to the act of cleaning the bottom.

camber: small tidal dock or basin.

carronade: introduced with success during the American war, it was a short gun of wide calibre. Since it threw a heavy shot, it was extremely effective at short range.

caulking: the filling of seams with oakum, which was made by picking loose old hemp rope; it was then "driven in loose strands, worked lengthwise into the seam until it was full and packed hard" (Abell, p. 90).

conduct money: paid to seamen and shipwrights for travelling to or from ports or dockyards.

demurrage: rate or amount payable to a shipowner by the charterer for failure to load or discharge ship within the time agreed.

Glossary (cont)

double-handed men:	were qualified as both shipwrights and caulkers.
establishment:	a fixed number of men or stores.
false keel:	"a strong, thick piece of timber bolted to the bottom of the keel...very useful in preserving the lower side of the main keel" (Falconer, p.164).
gin:	a hoisting apparatus, generally with three legs, for heavy weights.
ocham:	see caulking.
overseer:	a quarterman sent to a merchant yard to supervise the building of a ship intended for the navy.
pendant:	"generally a single or double rope to whose lower extremity is attached a block or tackle" (Falconer, p. 214).
receiving ship:	for the reception of seamen before they were allotted to a ship in commission. Some attempt was made to clean and train the men at this point.
reeve:	to pass a rope through a block.
riders:	"a sort of interior ribs, fixed occasionally in a ship's hold opposite to some of the principal timbers, and reaching from the keelson to the beams of the lower deck...to strengthen her frame" (Falconer, p. 243).
slops:	seamens' clothes.
seasoned timber:	timber which had been stored in dry conditions to lessen its moisture content. In the case of oak, three years was considered the minimum time needed to render it suitable for shipbuilding.

Glossary (Cont)

survey:	an examination for either quality or quantity.
thickstuff:	straight timber between 10" and 4" thick; by contrast, knees and compass timber were valued for their crookedness which helped in the construction of certain parts of the hull.
teams:	of horses hired by contract.
wale or whale:	see blackstrake.
warders, watchmen:	responsible for security. Warders were posted by the gate, while the watchmen had fixed or moveable positions within the walls of the yard.
yard craft:	barge, pinnace, cutter, yawl: usually belonged to the ship. All were oared boats (between six and ten oars), although the cutter carried a sail. The first two were primarily used for passengers, and the last two for stores. launch, wherry: oared boats more suited to sheltered waters, and based on the yard; mainly used for towing ships and carrying stores. lighter, hoy, sloop: usually sailing craft of some size, sometimes with a crew of ten. Used mainly for storing ships at Spithead and Plymouth Sound.

Principal sources: Falconer, Marine Dictionary; Westcott Abell, The Shipwright's Trade.

Appendix I. The Navy Board, 1774-1783.

Comptroller:	Aug 1770 - Apr 1775	Hugh Palliser
	Apr 1775 - Aug 1778	Maurice Suckling
	Aug 1778 - Mar 1790	Charles Middleton
Surveyor:	Jun 1765 - Nov 1784	John Williams
	Dec 1777 - Dec 1786	Edward Hunt
(Surveyor's 1st	Feb 1775 - Nov 1790	Thomas Mitchell)
(Assistants: 2nd	Mar 1771 - Nov 1790	John Binmer)
Clerk of the Acts:	May 1773 - Oct 1800	George Marsh
Extra Sea Commissioners:	Jan 1778 - May 1792	Edward Lecras
	Nov 1780 - Nov 1784	Samuel Wallis

Comptroller of:		
Treasurer's A/cs:	1761 - 1782	Timothy Brett
	1782 - 1802	George Rogers
Victualling A/cs:	1773 - 1796	William Palmer
Storekeeper's A/cs:	1761 - 1783	William Bateman
Extra Commissioner:	1778 - 1784	Richard Temple

Resident Commissioners:

Chatham:	Oct 1771 - Mar 1799	Charles Proby
Portsmouth:	Feb 1754 - Aug 1773	Richard Hughes
	Aug 1773 - Jan 1778	James Gambier
	Jan 1778 - Sep 1780	Samuel Hood
	Sep 1780 - Mar 1790	Henry Martin
Plymouth:	Oct 1753 - Mar 1775	Frederick Rogers
	Mar 1775 - Dec 1782	Paul Ourry
	(Dec 1782 - May 1783	Edward Lecras)
	May 1783 - Nov 1789	Edward Laforey

Principal sources: PP-CF, Fifth Report; Add MSS 24135; Royal Kalendars.

Appendix II. The Principal Officers of the Dockyards, 1774 - 1783

Deptford

Master Attendant:	Nov 1770 - Oct 1776	Thomas Cosway
	Oct 1776 - Mar 1783	Roger Gastrill
	Mar 1783 - Mar 1791	Benjamin Hunter
Master Shipwright:	Aug 1755 - Dec 1785	Adam Hayes
Clerk of the Cheque:	Aug 1773 - Dec 1783	James Butler Morn
	Dec 1783 - Mar 1807	Richard Rosewell
Storekeeper:	Oct 1765 - Ap 1790	William Matthews
Clerk of the Survey:	Aug 1771 - ? 1800	Peter Butt

Woolwich

Master Attendant:	Nov 1772 - Mar 1776	Peter Robinson
	Mar 1776 - Oct 1776	Joseph Gilbert
	Oct 1776 - Mar 1783	Benjamin Hunter
	Mar 1783 - Sep 1785	John Wescott
Master Shipwright:	Mar 1773 - Mar 1778	Nicholas Phillips
	Mar 1778 - Ap 1779	George Whito
	Ap 1779 - Dec 1782	John Jenner
	Dec 1782 - Dec 1785	Henry Peake
Clerk of the Cheque:	Aug 1773 - Jul 1793	Philip Soley
Storekeeper:	Jul 1772 - Jun 1779	George Lawrence
	Jun 1779 - Dec 1780	William Lance
	Jan 1781 - Sep 1791	James Clyde
Clerk of the Survey:	Oct 1770 - Aug 1782	Robert Hunter
	Aug 1782 - Oct 1791	Christopher Hill Harris

Appendix II (Cont)

Chatham

Master Attendants:	Ap 1755 - Feb 1776	John Towers
	Nov 1770 - Mar 1783	William Hammond
	Mar 1776 - Sep 1785	Magnus Falconer
	Mar 1783 - Sep 1799	William Nicholson
Master Shipwright:	Mar 1773 - Feb 1775	William Gray
	Feb 1775 - Ap 1779	Israel Pownoll
	Ap 1779 - Jul 1790	Nicholas Phillips
Clerk of the Cheque:	Mar 1768 - Jun 1783	William Campbell
	Jun 1783 - Dec 1791	John Williams
Storekeeper	Jul 1772 - Oct 1795	John Weatherall
Clerk of the Survey:	Nov 1770 - Ap 1798	James Hamilton

Sheerness

Master Attendant:	Nov 1770 - Aug 1775	John Covey
	Aug 1775 - Mar 1776	Joseph Gilbert
	Mar 1776 - Oct 1776	Benjamin Hunter
	Oct 1776 - May 1783	John Wescott
	Mar 1783 - Nov 1784	John Madgshon
Master Shipwright:	Mar 1773 - Mar 1778	George White
	Mar 1778 - Ap 1779	John Jenner
	Ap 1779 - Dec 1782	Henry Peake
	Dec 1782 - Nov 1784	Thomas Pollard
Clerk of the Cheque:	Aug 1773 - Jun 1783	John Williams
	Jun 1783 - Dec 1783	Richard Rosewell
Storekeeper:	Jul 1772 - Dec 1780	James Clyde
	Jan 1781 - Oct 1781	John Holden
	Nov 1781 - Oct 1791	George Tenit
Clerk of the Survey:	Ap 1773 - May 1780	Christopher Hill Harris
	May 1780 - Sep 1785	Henry Hodson

Appendix II (Cont)

Portsmouth

Master Attendants:	Ap 1755 - Oct 1776	Roger Gastrill
	Nov 1770 - Mar 1783	William Nicholson
	Oct 1776 - Mar 1791	Joseph Gilbert
	Mar 1783 - Feb 1793	Thomas Mosely
Master Shipwright:	Oct 1772 - Dec 1777	Edward Hunt
	Mar 1778 - Ap 1779	Nicholas Phillips
	Ap 1779 - Mar 1793	George White
Clerk of the Cheque:	Aug 1773 - Feb 1786	Thomas Snell
Storekeeper:	Jul 1747 - Sep 1791	John Greenway
Clerk of the Survey:	Jul 1772 - Nov 1788	John Sowers

Plymouth

Master Attendants:	Ap 1755 - Oct 1777	Benjamin Hall
	Ap 1767 - Mar 1776	Magnus Falconer
	Mar 1776 - Ap 1790	Peter Robinson
	Oct 1777 - Aug 1804	James Smith
Master Shipwright:	May 1762 - Feb 1775	Israel Pownoll
	Feb 1775 - Nov 1784	John Henslow
Clerk of the Cheque:	Jan 1762 - Jun 1801	John Lloyd
Storekeeper:	Feb 1754 - Jan 1782	Philip Justice
	Jan 1782 - Oct 1791	Jacob Pownoll
Clerk of the Survey:	Dec 1763 - Ap 1790	Ralph Paine

Principal Sources: NMM Lists of Dockyard Officers; Royal Kalendars; PP-CF.

Appendix III. The Labour Force of the Yards, 1774-1783.

		Ship-wrights	Total			Ship-wrights	Total
1774	Mar	3271	8114	1779	Mar	3271	8814
	Jun	3233	7747		Jun	3296	8883
	Sep	3245	7741		Sep	3287	9038
	Dec	3246	7709		Dec	3297	9098
1775	Mar	3235	7689	1780	Mar	no figures	
	Jun	3221	7672		Jun	- do -	
	Sep	3070	7543		Sep	- do -	
	Dec	3131	7623		Dec	3298	9106
1776	Mar	3115	7602	1781	Mar	3375	9205
	Jun	3096	7622		Jun	3354	9224
	Sep	3098	7598		Sep	no figures	
	Dec	3128	7844		Dec	3287	9271
1777	Mar	3155	7884	1782	Mar	3359	9477
	Jun	3148	7889		Jun	no figures	
	Sep	3141	7891		Sep	3312	9430
	Dec	3112	7873		Dec	3268	9470
1778	Mar	3178	8088	1783	Mar	no figures	
	Jun	3258	8446		Jun	3282	9352
	Sep	3275	8651		Sep	3254	9319
	Dec	3256	8727		Dec	3165	9250

Sources: NMM, ADM B/188 - BP/4; ShP, 144, no. 6, 16 Aug 1776. The peak total (March 1782) is given in detail in Appendix IV.

Appendix IV. The Labour Force: Warrant of March 1774/Return of March 1782.

	Deptford		Woolwich		Chatham		Sheerness	
	1774	1782	1774	1782	1774	1782	1774	1782
Shipwrights	430	460	340	332	675	616	165	194
Quarter Boys	9	9	8	8	12	12	5	6
Caulkers	30	40	28	42	80	78	30	42
Ocham Boys	10	10	9	9	26	26	10	10
Joiners	28	34	20	27	32	47	12	16
House Carps.	30	45	30	40	60	60	24	32
Wheelwrights	2	2	2	2	2	2	1	1
Plumbers	1	1	1	1	1	1	1	1
Pitch heaters	1	1	1	1	2	2	1	1
Bricklayers	14	12	11	10	13	13	6	8
-do- labourers	14	10	11	7	13	13	6	6
Sailmakers	25	31	20	24	30	30	15	20
Scavelmen	18	18	16	27	50	50	30	30
Riggers	(19)	51	(15)	25	(46)	50	(16)	23
-do- labourers	(7)	20	(5)	16	(20)	50	(6)	23
Labourers	190	382	120	235	170	234	33	34
Blockmakers	3	3	2	2	2	2	2	2
Braziers	1	1	-	1	1	1	1	1
Locksmiths	3	2	2	2	2	2	-	-
Teams	8	9	6	8	11	13	4	4
Sawyers	75	85	48	48	92	110	24	20
T'nail mooters	2	2	1	-	-	-	-	-
Oarmakers	1	1	-	-	-	-	-	-
Masons	-	-	-	-	-	-	-	-
Watermen	1	1	-	1	-	-	-	-
Armourers	1	1	1	1	-	-	-	1
Smiths	40	60	35	48	55	60	25	36
Ropeyard								
Foremen	-	-	2	3	2	2	-	-
Spinners	-	-	93	151	109	139	-	-
Hatchellors	-	-	16	31	18	24	-	-
Winders Up	-	-	8	11	-	-	-	-
Line makers	-	-	-	10	-	-	-	-
Labourers	-	-	15	21	18	24	-	-
Hemp dressers	-	-	-	10	-	-	-	-
Boys	-	-	8	25	8	12	-	-
Warrant of 1774	936		834		1434		395	
Return of 1782		1291		1179		1673		511

nb: Since the warrant of 1774 contains no figures for the riggers and their labourers, those from the return of 20 April 1774 (NMM, B/189) have been substituted.

Appendix IV (Cont)

	Portsmouth 1774	Portsmouth 1782	Plymouth 1774	Plymouth 1782	Total 1774	Total 1782
Shipwrights	860	820	790	937	3260	3359
Quarter Boys	13	13	12	12	59	60
Caulkers	90	111	90	102	348	415
Ocham Boys	33	35	30	30	118	120
Joiners	50	77	45	63	187	260
House Carps.	60	100	50	81	254	358
Wheelwrights	3	2	2	4	12	13
Plumbers	2	6	2	1	8	11
Pitch heaters	2	2	2	2	9	9
Bricklayers	16	28	16	32	76	103
-do- labourers	16	32	10	10	70	78
Sailmakers	45	63	35	52	170	220
Scavelmen	60	92	50	60	224	277
Riggers	(67)	140	(54)	79	(217)	368
-do- labourers	(50)	80	(50)	100	(138)	289
Labourers	290	275	260	300	1063	1460
Blockmakers	3	4	3	4	15	17
Founder	-	-	-	1	-	1
Braziers	1	2	1	3	5	9
Locksmiths	2	2	3	3	12	11
Teams	21	20	16	23	66	77
Sawyers	122	134	86	88	447	485
T'nail mooters	-	-	1	1	4	3
Oarmakers	-	-	1	1	2	2
Masons	4	7	7	9	11	16
Watermen	-	-	-	-	1	2
Armourers	-	-	-	-	2	3
Smiths	85	87	80	110	320	401
Ropeyard						
Foremen	2	2	2	3	8	10
Spinners	115	176	132	218	449	684
Hatchellors	18	29	23	40	75	124
Winders Up	9	14	11	17	28	42
Line makers	-	-	-	-	-	10
Labourers	14	19	16	37	63	101
Hemp dressers	-	-	-	-	-	10
Boys	8	12	9	16	33	64
Warrant of 1774	1864		1785		7248	
Return of 1782		2385		2438		9477

Sources: PRO, ADM 95/95, 16 Mar 1774; NMM, ADM BP/3, 25 Ap 1782. This format approximates to that of the quarterly Navy Board Returns to the Admiralty.

Appendix V. Salaries and Incomes of Officers and Clerks, 1784.

From the Commission on Fees, 1786-8, corrected to the nearest pound. The figures given for the clerks are for the most senior and the most junior in each office. The first figure represents the established salary; the second the total income.

	Dept.	Wool.	Chat.	Sheer.	Portsmouth	Plymouth
M.Attend.	200/204	200/206	200/265	150/160	200/256	200/205
M.Attend.			200/183		200/250	200/205
1 Cl.	40/100	40/74	40/108	40/49	40/90	40/132
M.Shipw.	200/339	200/343	200/509	150/341	200/384	200/345
1 Cl.	45/316	45/123	45/122	45/90	45/158	45/165
Ju.Cl.	40/40	40/40	40/41	40/40	35/35	35/35
C.of Ch.	200/320	200/281	200/303	150/180	200/456	200/448
1 Cl.	45/265	45/135	45/185	45/169	45/360	45/371
Ju.Cl.	30/55	30/30	30/34	30/65	30/38	30/30
Storek.	200/256	200/228	200/284	150/188	200/345	200/323
1 Cl.	55/274	55/191	55/188	55/115	55/160	55/167
Ju.Cl.	40/40	40/40	40/40	40/40	40/40	40/53
C.of Sur.	200/193	200/197	200/190	150/143	200/191	200/191
1 Cl.	45/214	45/179	45/147	45/116	45/247	45/196
Ju.Cl.	30/36	30/34	30/35	30/30	30/37	30/30
1st.Asst. M.Shipw.	100/203	100/207	100/195	80/198	100/182	100/178
2nd Asst. M.Shipw.	100/190	100/145	100/197		100/187	100/190
Purveyor.	60/263	60/185	50/256		80/226	no figures
Surgeon.	100/219	100/177	100/248	100/167	100/320	100/378
Boatswain.	80/147	80/90	80/142	70/72	80/177	80/124
Porter.	30/190	30/56	30/71	25/45	30/177	30/103

Appendix VI. Pay and Allowances: Artificers and Labourers.

	per diem	when established	Rate per tide
Quartermen	2/6	1696	7½d
Shipwrights	2/1	1690	7½d
Caulkers	2/1	1694	7½d
Quarter Boys	8	1697	2d
Oakum Boys	6	1693	2d
Blockmakers	2/1	1694	7½d
Smiths, Foremen,			
1st class	2/6 (3/0)	1726 (1778)	5d (7½d)
2nd class	2/2 (2/8)	1726 (1778)	5d (7½d)
3rd class	1/10 (2/8)	1726 (1778)	5d (7½d)
Hammermen	1/8 (2/0)	1731 (1778)	5d (7½d)
Joiners	2/0	1694	7½d
House Carpenters	1/10	1697	6d
Bricklayers	1/8	1697	5d
Riggers	1/6	1694	4d
Scavelmen	1/6	1697	4d
Labourers	1/2	1690	4d
Sawyers (per 100 foot)	-	-	-
Sailmakers	1/10	1694	6d
Apprentices to shipwrights etc			
1st year	1/2	1711	4d
7th year	1/10		6d
To Joiners etc			
1st year	1/0		4d
7th year	1/8		5d
Ropeyard Foremen	1/10	1699	-
Layers	1/8		-
Ropemakers	1/8		-
Hatchellors	1/5		-
Winders	1/4		-

This table is compiled from the Commission of Naval Enquiry, 1803-4, pp. 190-195; it differs but little from those given by Ehrman (pp. 93-5) and Baugh (p. 309). See also B.Mcl. Ranft, pp. 282-3.
The figure in parentheses by the smiths is the rate for those engaged on the strenuous work of making anchors. They also had a considerable allowance of beer. The figures for extra are taken from Plymouth; the rate for each yard seems to have levelled out since the 1740's (see Baugh, p. 309), although Woolwich still paid shipwrights at the rate of 8d per tide.

Appendix VII. Representative Sample of the wages of a Working Shipwright.

Deptford

	Days	Nights	Tides	Full wages.
Lady Quarter				
1774	77	0	0	£ 8 - 0 - 5
1778	76	0	73	£11 - 3 - 4
Midsummer				
1774	78	0	51	£ 9 -14 - 4
1778	78	1	94	£14-12 - 5
Michaelmas				
1774	79	0	53	£ 9 -17 - 8
1778	79	0	155	£13 - 1 - 5
Christmas				
1774	79	0	0	£ 8 - 4 - 7
1778	77½	0	100	£13 -19 - 7

Total: 1774 £35 -17 - 0
1778 £52 -16 - 9

Portsmouth

	Days	Nights	Tides	Full wages.
Lady Quarter				
1774	77	0	0	£ 8 - 0 - 5
1778	76	0	104	£11 - 3 - 4
Midsummer				
1774	77½	0	51	£ 9 -13 - 4
1778	77½	58	38	£15 -16 - 0
Michaelmas				
1774	79	0	53½	£ 9 -18 - 0
1778	78½	63	28	£15 -12 - 3
Christmas				
1774	79	0	0	£ 8 - 4 - 7
1778	78	0	154	£12 -18 - 9

Total: 1774 £35-16 - 4
1778 £55- 0 - 4

Sources: PRO, ADM 42/564, 568, 1290, 1294: From a sample of twenty shipwrights at both yards. The Deptford shipwrights were working by task in 1778.

Appendix VIII. Consumption, Delivery and Remains of Oak Timber, Thickstuff and Plank, 1771-1783.

Making an estimate of the yearly consumption of oak is difficult. The first complication stems from the "sided and converted" order of 1772; the amount of sawn timber was made equal to rough logs by adding a third of the total. It is often not clear whether this had been done.

Secondly, there are many conflicting figures. Returns for the 1760's are plentiful, and a seemingly accurate summary is printed in the 1771 Timber Report (p. 29). Even so, there are discrepancies of between three and four thousand loads for this decade between the only two manuscript Navy Board sources (PRO, ADM 106/3182 and 49/124). The first of these volumes is the major source of tabular statistics for the 1770's and early 1780's; but it is carelessly filled, incomplete and the consumption figures are considerably underestimated. Oak timber alone in 1773, for instance, appears to be seven thousand loads short in comparison with the figure in ADM 49/124.

The oak timber and plank that was consumed during the war period probably ranged between 26,000 and 30,000 loads a year. This is the gist of the information given by Williams (p. 302), but it is not clear how he arrives at his figures; they match up as well as can be expected to the figures of deliveries and remains in store given below. The state of the returns to the Navy Board and the inaccuracy of accounting methods makes the incidence of these complications understandable.

	Deliveries (in loads)	Remains (in loads)
1771	32,855	19,972
1772	45,067	27,386
1773	52,029	50,027
1774	42,085	68,803
1775	34,426	68,500
1776	34,774	71,383
1777	36,225	66,232
1778	41,341	71,522
1779	36,334	72,154
1780	30,987	67,455
1781	29,118	58,283
1782	no figures	48,774
1783	- do-	52,594

Sources: NMM, ADM BP/3, 24 Sep-2 Oct 1782; B/184 -BP/5; also Williams, p. 302.

Appendix IX. Oak Consumed, 1765-7; 1784 Establishment.

	1765	1766	1767
Oak and Thickstuff (in loads):			
British	21271	26008	26908
Foreign	109	157	34
American	-	-	2
(average p.a: 24,829)	21380	26165	26944
Plank (in loads):			
British 4"-3"	2368	1897	2313
British 2½"	587	411	452
Foreign 4"-3"	1655	1333	1464
(average p.a: 4193)	4610	3641	4229

(total average per annum: 29,022)

Source: 1771 Timber Report p. 29; see also PRO, ADM 49/124. Middleton based his 1784 Standing Order on these figures.

1784 Establishment of Oak Timber, Thickstuff and Plank.

	Dept.	Wool.	Chat.	Sheer.	Port.	Ply.	Total.
Straight and compass timber.	10200	8400	16600	3300	16700	10800	66000
Thickstuff (10" - 4½")	1200	900	2000	100	2000	2500	8700
Plank.	1500	500	2500	600	2500	1500	9400
Total	12900	10100	21100	4000	21200	14800	84100 loads.

Source: SO(b), 348, 29 Nov 1784.

Appendix X. Distribution of Oak Timber (without Thickstuff and Plank), 1774-1783.

	Dept	Wool	Chat	Sheer	Port	Plym	Total
1774	8361	6904	10375	2127	15491	13718	56976
1775	6658	7470	7948	1924	20623	12507	57130
1776	6514	6894	8984	1281	28918	11618	64209
1777	5124	4104	8494	1732	26451	12256	58161
1778	5401	5128	9029	2631	26842	12749	61680
1779	5075	7111	9524	1729	25831	12606	61879
1780	3539	5925	8407	1584	25164	12563	57182
1781	3509	4924	4795	1851	22265	12306	49893
1782	2134	2469	2858	1690	21323	10598	40733
1783	938	2239	2611	2071	21611	11569	41059
1784	1739	2971	1480	2080	9122	12041	29431

The figures represent the remains in store for the 31st December of each year. Those for the year 1784 have been included to illustrate the realistic assessment of the oak in Portsmouth yard after Greenway's "cursory survey".

If these figures are compared with those of the Establishment of 1784 in Appendix IX it can be seen how far from ideal the situation was for most of this period - in particular, the uneven distribution of timber between the eastern and western yards.

Sources: NMM, ADM B/189 - BP/5.

Appendix XI. Ships of the Line Built and Completed, 1774-1783.

	Royal Yards			Merchant Yards	
1774:	Mar:	Cumberland 74	(D)	May:	Eagle 64
				May:	Hector 74
				Jun:	Vengeance 74
	Dec:	Nonsuch 64	(Pl)	Oct:	Vigilant 64
1775:	Ap :	Berwick 74	(Po)		
	Jun:	Stirling Castle 64	(C)		
	Oct:	Bedford 74	(W)	Dec:	Sultan 74
1776:	May:	Culloden 74	(D)		
	Nov:	Ruby 64	(W)		
1777:	Aug:	America 64	(D)		
	Aug:	Formidable 90	(C)		
	Sep:	Lion 64	(Po)		
	Oct:	Duke 90	(Pl)		
1778:	Oct:	Alfred 74	(C)		
	Oct:	Alexander 74	(D)		
1779:	Jun:	Edgar 74	(W)		
	Jul:	Alcide 74	(D)		
	Aug:	Montagu 74	(C)		
1780:				Mar:	Fortitude 74
				Mar:	Inflexible 64
				Jun:	Belliqueux 64
	Oct:	Magnanime 64	(D)	Nov:	Repulse 64
1781:	May:	Sampson 64	(W)	Ap :	Agamemmnon 64
	Sep:	Anson 64	(Pl)	Ap :	Africa 64
	Oct:	Goliath 74	(D)	Jun:	Sceptre 64
	Oct:	Warrior 74	(Po)		
1782:	Feb:	Atlas 90	(C)	Mar:	Ganges 74
	Ap :	Polyphemus 64	(S)	Mar:	Crown 64
	Oct:	Standard 64	(D)	Jun:	Bombay Castle 74
	Dec:	Diadem 64	(C)	Nov:	Ardent 64
				Oct:	Scipio 64
				Dec:	Irresistible 74
1783:				Jan:	Carnatic 74
				Jan:	Dictator 64
				Ap :	Powerful 64
				Jun:	Culloden (ii) 74
				Nov:	Thunderer 74
				Dec:	Defiance 74

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SANDWICH, MIDDLETON AND DOCKYARD APPOINTMENTS

By R. J. B. Knight

THE controversy between Lord Sandwich and Charles Middleton over dockyard appointments in January and February 1781 was for long one of the main props of the traditional and unsympathetic view of Sandwich's administration. The First Lord, it was argued, filled the yards with political nominees; the consequence was the ruinous condition of the fleet and defeat in the American War of Independence. Since the publication of the Sandwich Papers in the 1930s the reputation of the First Lord as an administrator has been salvaged.[1] That this revision was so long in coming was due in part to his political unpopularity and isolation; by building up a following in the Navy of men of ability who were 'political nonentities by eighteenth century standards' he improved the administrative capacity of an overworked navy, but in doing so he alienated the influential and aristocratic officers, and split the service into opposing factions.[2] Middleton conformed to this pattern; he was similar to men like Palliser, Mulgrave and Suckling, all protégés of the First Lord. He was, however, a difficult colleague, and Sandwich found himself faced with a formidable opponent when there were grounds for disagreement. Yet this controversy was the only major cause of friction in the vital relationship between the two men as First Lord and Comptroller of the Navy Board. A strong Comptroller could obstruct an Admiralty Board which was ignorant of the civil affairs of the Navy, and any controversy between the two boards was a test of strength, the result of which could determine subsequent relations to a marked degree. The ill-feeling between Middleton and Howe, then at the Admiralty, after the American war demonstrated how far things could go wrong. Sandwich, however, was more than informed on the affairs of the civil administration, for he could draw on experience from as far back as the 1740s. His handling of this affair was firm and tactful, and he outmanœuvred the threats and pressures of his Comptroller.

The issues at stake were complicated, not least by the fact that the

1 *The Private Papers of John, Earl of Sandwich*, ed. G. R. Barnes and J. K. Owen (N.R.S. 1932–8). The controversy is printed in vol. IV, pp. 374–80, 381–3, but more fully in the *Letters and Papers of Charles, Lord Barham*, ed. J. K. Laughton (N.R.S. 1907–11) II, pp. 11–30 (cited below as *Barham Papers*).

2 J. H. Broomfield, 'Lord Sandwich at the Admiralty Board; Politics and the Navy 1771–8; *Mariner's Mirror*, LI (1965), p. 9.

dockyard organization was, for the age, an immense size; it was also a highly technical service, for which there were virtually no standards by which an officer's worth could be evaluated. Middleton was trying, by a system of disinterested recommendations, to introduce meritocracy in governing the promotions of yard officers, which he intended to be administered by the Navy Board. Sandwich, while admitting that improvements could be made, preferred to take recommendations from any source—including the Navy Board—when he felt he needed them, but did not wish to be governed entirely by recommendations from the professional board, which, in any case, he distrusted on principle. The affair can be seen at three levels. It was a clash of different social and administrative principles. Middleton, the complete professional, saw the controversy in terms of the efficiency of the nineteenth century; Sandwich, the informed amateur, represented the administration of government by the gentlemen of the eighteenth century. At the same time, the controversy represented a stage in the long history of friction and mutual distrust between the senior and junior boards. Finally, it can be seen as a personal conflict. Middleton, hot-headed and idealistic, attempted to bring perfection to a system where there was none to be had. Sandwich, adroit and calm, content with the way of things, cooled the temper of the Comptroller so that a complete breakdown was avoided.

The system of appointment and promotion in the dockyard service was haphazard. The most significant factor was the relative lack of influence of the Navy Board, which was responsible for administering the yards. The Admiralty controlled all promotions of yard officers and officers of the Ordinary, while the appointment of workmen was in the hands of the Principal Officers of the yards.[1] The only control that the Board was able to exert was through the Resident Commissioners of the Outports (members of the Board), who were empowered to approve all appointments.[2] The Committee of Enquiry of 1804 noted this as a weakness:

> Though the Resident Commissioner has authority over all persons employed in the yard, he has no power to reward, promote or even cause a man to be entered into the service; and from this circumstance, although the Principal, he appears to have less influence over the workmen than any other officer; this seems to us to be a defect in the system...[3]

A year later the Commission of Naval Revision modified this view; since the Commissioner had the power of approval of all appointments and

1 'No shipwright or labourer...is to be entered without the warrant from two or more of the Chief Officers [of the Dockyards].' (*The Oeconomy of His Majesty's Naval Office* (London, 1717), p. 110). The Oeconomy was a reprint of the Duke of York's 1662 Instructions, by which the civil administration was still governed.

2 P.R.O., IND 10665 (36c), Standing Order of 31 Mar. 1705.

3 Parl. Pap., *The Report of the Commissioners of Naval Enquiry*, 1803–4, sixth report, pp. 3–4.

entries, 'and at all times the power of reporting meritorious service to the Board', he had quite enough authority.[1] It is clear, however, that in view of the lack of influence of the Board itself, the power of the Resident Commissioners was too weak.[2] Furthermore, there was no guarantee that the Commissioner resident at the yard would be in sympathy with his colleagues in London. In fact, the only control that the Navy Board had was over the numbers employed.[3]

The Board did, however, control the promotion of men below the rank of 'master'. Dockyard foremen, quartermen and 'sub' and 'pro' quartermen were appointed by Navy Board warrant.[4] In cases of prolonged absence, even the appointment of a substitute had to be confirmed by the Board.[5] The clerks in the yard offices were also the concern of the Board; they were recommended by the officers (in return for a substantial premium), and the appointment was confirmed by warrant.[6] The last two categories for which the Board were responsible were the shipwrights assigned to oversee the building of ships in merchant yards and the cooks on the ships in ordinary. Cooks were usually old or maimed seamen, and since the Board was in charge of the administration of the Chatham Chest, it appointed these men.[7] Unimportant in itself, it demonstrates the patchwork structure of the appointments system.

In addition, the Board possessed some unofficial influence, as it acted as a form of appeal court over the yard authorities. The first six months of 1775 provides an illustration of how this influence worked, for this was a period when entry into the yards was difficult for shipwrights.[8] During

1 Parl. Pap., *The Report of the Commissioners for Revising and Digesting the Civil Affairs of His Majesty's Navy*, 1805–6, first report, p. 18. This opinion is clearly Middleton's; he was never in favour of giving the Resident Commissioners more influence.

2 See D. Baugh, *British Naval Administration in the Age of Walpole* (Princeton, 1965), p. 292 n, for a different opinion.

3 Between 1774 and 1779 there were 125 adjustments to the labour force of the yards. Admiralty approval had to be given before any major increase was instituted, but small increases and decreases were administered by the Board (P.R.O., ADM 95/95–6).

4 Each yard had a Master Shipwright with two Assistants (except Sheerness, which had only one) who controlled most of the work-force. Under these officers were one or two foremen, who provided the link with the quarterman who led the gangs of shipwrights. 'Pro' quartermen were established to take the place of any absent quartermen. Minor trades, such as joiners and smiths, had their masters and foremen, but they, as well as the boatswain of the yard in charge of the unskilled labourers, were under the direction of the Master Shipwright.

5 E.g. P.R.O., ADM 95/95, 28 Dec. 1774, 28 Oct. 1777.

6 The Resident Commissioner would examine and approve of the clerk (e.g. P.R.O., ADM 106/2592, 27 Jan. 1775).

7 E.g. *ibid.* 19 May, 30 June 1775.

8 A Standing Order of 5 May 1775 ordered the yard officers to take no more shipwrights at all, but by the end of June the regulations began to be relaxed (P.R.O., ADM 106/2508, no. 677; ADM 95/95, 29 June 1775).

this time there were 40 petitions to the Board from artificers who required either entry, discharge or removal from one yard to another.[1] Although the Resident Commissioners, as representatives of the Board, controlled the yard officers in questions of entry and discharge, petitions from workmen both in and out of the service reached the Board in London. It had no established power to order the entry of artificers, but the yard officers were unlikely to refuse a request from the Commissioners in London. In return, the central administration generally backed up the decisions of the yard officers in matters of this sort. Not all the petitions came from the artificers themselves. In one case Sandwich himself enquired on behalf of John Henniker, one of the largest contractors to the Navy, who wished to have one of his men entered at Chatham; but the Board, in this and other instances, did not give way to any pressure.[2] Pressure on the Board or yards for entry was, however, short-lived. Once the war had started in earnest, the shortage of shipwrights made all applications for entry welcome. By 1778 the yard officers were ordered 'not to be too scrupulous in entering...good workmen at this time when they are scarce'.[3] The question of promotion was, by contrast, a constant problem.

The particular point at issue between the First Lord and the Comptroller was the promotion of the shipwright officers, for they posed a particular difficulty. While the dockyard clerical posts needed little prior expertise,[4] and the skill of the other technical officer, the Master Attendant, could be attested by sea officers, there was no one who could judge the technical competence of one shipwright over another.[5] Highly developed as an art rather than as a science, shipbuilding was a trade for which few standards could be set. A senior officer told the Commission on Fees that his apprentices learnt from him 'the art and mystery of a shipwright'.[6] There was no shipwright officer class as in France. Nor was there any formal education; every officer had to work his way up from the 'floor' of the yards. In an organization the size of the dockyards, with a large number of

1 P.R.O., ADM 106/2592, Jan.–June 1775.

2 *Ibid.* 17 Jan., 21 Apr. 1775.

3 P.R.O., ADM 106/2597, 12 Jan. 1778. By this time petitions to the Board were automatically referred to the yard officers with the order to enter the workmen, 'if they have no objection'.

4 The lack of prior knowledge was criticized later. See Parl. Pap., *Reports of the Commissioners appointed...to enquire into the Fees, Gratuities, Perquisites, and Emoluments...received into the several Public Offices* (cited below as *Commission on Fees*), 1786–8, 1806, sixth report, p. 308.

5 The skill of individual shipwrights was a subject studiously avoided, especially by other members of the trade. There are few direct references to individuals, but see Hood's opinion of George White, Master Shipwright at Portsmouth, in *Correspondence of George III*, ed. J. Fortescue, IV (London, 1927), p. 347.

6 *Commission on Fees*, sixth report, p. 414.

men in relation to officers, there had to be a selection process; it was this which was the core of the problem.[1]

The system came under widespread criticism. The effect of having shipwrights rising to the top of the service as craftsmen rather than as theoreticians was seen as disastrous by the more forward-thinking of the officers. Kempenfelt wrote to Middleton in 1780:

> The want of a good foundation laid of mathematical knowledge prevents our builders from rising to eminence; for want of this light, they are often obliged to grope in the dark, they guess, because they have not the mathematics to calculate certainty; when they give their bottom any particular form, they guess at the effect.[2]

The weakness of the system was that the Master Shipwrights 'were at once social inferiors and experts'. The result was that little advance was made in ship design, and that 'the most important lessons were learnt from the designers of the enemy'.[3] The technical side of the service therefore laboured under twin disadvantages. The system was not egalitarian enough to allow ability to emerge from the mass of ordinary shipwrights; only the favoured shipwrights who were apprenticed to officers rose to the rank of officer. Yet this élite was not given a superior training.

All the Master Shipwrights in the last quarter of the eighteenth century had been apprenticed to former Master Shipwrights. It was impossible for an apprentice of an ordinary shipwright to become an officer. There was, therefore, a *de facto* officer class. For this advantage, a Master Shipwright charged 20 guineas as an initial apprentice fee, while their Assistants charged about fifteen.[4] The more junior officers gave no evidence to the Commission on Fees on this matter, but it is obvious that even foremen had their price.[5] The initial charge was increased in some cases to include board and lodging, for the more senior an officer, the less likely he would be to make any allowances to an apprentice. Thus the father of one Richard Parnell paid 100 guineas to George White, at that time Master Shipwright

1 See Baugh, *op. cit.* pp. 306–7.

2 *Barham Papers*, I, p. 325, 9 Apr. 1780. See also severe criticism by Malachy Postlethwayt in his *Universal Dictionary of Trade and Commerce* (London, 1774), s.v. Architecture. For a defence of the system see J. Charnock, *History of Marine Architecture*, III (London, 1802), pp. 138–9, 383–7.

3 Baugh, *op. cit.* pp. 252–3; see also R. G. Albion, *Forests and Sea Power* (Cambridge, Mass., 1926), pp. 79–80.

4 *Commission on Fees*, sixth report, pp. 344, 414, 453. The Master Shipwright at Plymouth charged 50 guineas, but justified this high figure by saying that 'it was peculiar to this yard' (p. 452).

5 Three junior officers at Plymouth stated that they had paid £10 to a foreman, yet one officer had paid £52 to a foreman at Deptford. There was no standard rate; it depended on the standing and connections of the Master (*Commission on Fees*, sixth report, p. 330).

at Sheerness, in lieu of board.[1] Apprenticeship to an influential officer was not something that everyone could afford.

The reason for the care with which the officers took on and kept their apprentices was that the wages, paid straight to the Master, was a most important supplement to the yard officer's salary. These had not been changed since the previous century.[2] In most cases the wages of the apprentices formed half the total income of the officers. The whole situation was criticized by the Commission on Fees, which recommended that no officer on a yearly salary should have any apprentices at all. The system was, 'expensive, discouraging to able and deserving artificers, detrimental to the public service, and subject to many inconveniences not necessary, and perhaps not proper to mention here, but what every professional man acquainted with the Dockyards must feel'.[3] All apprentices should go to the most deserving of the workmen, to be decided by the Resident Commissioner. The Commission went on to recommend that the indenture of an apprentice should not be the property of the master, but should be handed over to the successor to the post. The effect of this proposal would have been to have stopped the wholesale movement of personnel from yard to yard, and to have prevented the binding together of master and servant throughout their careers.[4]

When a senior shipwright officer moved to another yard, he took his apprentices with him. This was a tradition that the Navy Board encouraged, but there were still cases of apprentices being in different yards from their masters—a practice which, of course, nullified the whole principle of instruction.[5] Yet it is obvious that the training of the apprentice by the master, in the case of the officers, had fallen away. White complained to the Navy Board that he could not find a suitable apprentice at Sheerness, and his request that one be entered for him at Plymouth was granted.[6] This transfer of personnel could extend further than apprentices; in March 1775 Israel Pownoll asked the Board if he could take one Joseph Foot and his servant with him when he was promoted from Plymouth to Chatham. The Board granted his request, but made it clear that it was an indulgence.[7]

1 *Commission on Fees*, sixth report, p. 419.

2 See J. Ehrman, *The Navy in the War of William III, 1689–1697* (Cambridge, 1953), p. 599. Adjustments had been made to individual yards, but in general the levels were the same (e.g. P.R.O., ADM 106/2508, no. 1128, 4 Jan. 1782).

3 *Commission on Fees*, sixth report, p. 307. 4 *Ibid.* p. 308.

5 The Board ordered in 1775 that it was not to be bothered with requests for the transfer of apprentices and that in future the officers were to take their servants with them automatically (P.R.O., ADM 106/2592, 3 Mar. 1775).

6 *Ibid.* 10 Jan. 1775.

7 P.R.O., ADM 106/2592, 7 Mar. 1775. The Board warned Pownoll that Foot was not to get automatic promotion at the new yard.

An example of the progress of a Master Shipwright is provided by Martin Ware, who occupied the position at Deptford at the time of the Commission on Fees. Apprenticed in 1731 to Joseph Allen, Master Shipwright at Portsmouth, he paid £30 as a fee, 'his friends finding him in cloths and tools during the whole time'. Three years after his apprenticeship had ended he was promoted to quarterman in the same yard, 'principally employed in the mould loft'. In 1742 his master went to Deptford, and Ware, with the Board's permission, went with him. Here he was a working shipwright for only five weeks before he was again promoted to quarterman and 'delineating...the drafts of ships...on the mould loft floor'. Four years later Allen was promoted to the post of Surveyor of the Navy, and Ware again accompanied him. At this point, however, his progress was slowed, for Allen died in 1749. Without his influence, Ware stayed at the minor post of Master Mast Maker at Portsmouth for eighteen years, but in 1773 he was made second Assistant to the Master Shipwright at Plymouth, and five years later rose to the first Assistantship. After an unsuccessful application to Sandwich in 1779 for the vacant first Assistantship at Deptford, he was made Master Shipwright at Sheerness in 1784 at the age of sixty-seven. After this he made the customary progress to Woolwich and then to Deptford.[1] Ware was older than the average when he reached the senior posts, but this can be directly attributed to the fact that his promising career was delayed by his master's death; after this, Ware had to rely upon seniority. His career, however, illustrates how much the eventual success of the apprentice was almost wholly dependent on the success of the master.

Nevertheless, a Master Shipwright could not hope to provide handsomely for all his apprentices, for he was allowed five, and his Assistants three. The solution was to provide, by recommendation to the Navy Board, those who were less favoured with minor posts in the yard. These posts might not be influential, but they would provide a living superior to that enjoyed by the ordinary shipwrights, and would represent a return on the investment of the apprentice fee. William Drew, the Painters' Measurer to the Clerk of the Cheque at Portsmouth at the time of the Commission on Fees, was one example. Apprenticed to Edward Hunt twenty years before, 'to whom his friends had paid twenty guineas and seven years board, the value of which he estimates at two hundred and fifty guineas', he had been looked after by his master. Only three years out of his apprenticeship he was 'appointed to his present post by Mr Snell, the Clerk of the Cheque,

1 The details of Ware's career come from the *Commission on Fees*, pp. 324–5, together with information from Lists compiled from P.R.O., ADM 6 and 11 (Commission and Warrant Books) at the National Maritime Museum (cited below as N.M.M. Lists).

being recommended to him by Mr Hunt, then Master Shipwright, who in consideration thereof appointed a quarterman'.[1] Those who were able to afford to be apprenticed to an important officer could expect to reach some post, however modest. It would be unlikely, in this case, if a higher position would be gained.

Above the class of Master Shipwrights there was another élite. Every Surveyor of the Navy had been apprenticed to a former Surveyor, and it must be surmised that this exclusiveness would have blocked the way of ability from lower sources. It is obvious from their rate of progress that the occupants of this post, and their two Assistants at the Navy Office, were privileged from the start of their careers as apprentices in the yards. John Binmer, promoted to Second Assistant to the Surveyor by Sir John Williams in 1771 at the age of thirty, had been Williams's apprentice; by this promotion he by-passed the whole elaborate structure of rank and yard, for he was appointed without ever having served his time in the yards. Williams circumvented the regulations in this respect by appointing Binmer a foreman, and then an Assistant to a Master Shipwright, while still an apprentice.[2] He was an exceptional case, since such a blatant disregard of experience in promotion was rare. It is significant that Binmer rose no farther, for after Hunt had been promoted over his head to be Joint Surveyor, he applied to Sandwich for the post of Master Shipwright 'at any yard'.[3] He was unsuccessful, but Henslow, Surveyor in 1784, had to take the same course, going to Plymouth as Master Shipwright for nine years after his time as Surveyor's Assistant in London.

Samuel Bentham, whose avowed wish when still an apprentice was to become Surveyor of the Navy, had no patience with the need for seniority and influence in the civil administration. Irked by the traditional ideas with which he had to work in the yards, he pointed out that even the favoured shipwrights were given no training in design, merely being required to transcribe ship's draughts in the yard mould loft.[4] Forced to work with his hands when he wished to be at a drawing board, and frustrated at every point by the conservatism of the Navy Board, he was unwilling to remain working

1 *Commission on Fees*, sixth report, p. 426. Edward Hunt was Master Shipwright at Sheerness from July 1767 to Oct. 1772 and it was during this time that Drew was apprenticed. Hunt took Drew with him to Portsmouth when he was appointed there. On 1 Jan. 1778 Hunt was appointed Joint Surveyor.

2 *Ibid.* fifth report, p. 202.

3 N.M.M. SAN 5, Sandwich's Appointment Books (SAN 1–3, 5–6).

4 No process could be better designed to force traditional thinking on an apprentice. Israel Pownoll, Master Shipwright at Chatham, under whom Bentham worked when his first Master, William Grey, had died, also believed that manual labour was necessary to the understanding of theory, which certainly did not accord with Bentham's views. See *The Correspondence of Jeremy Bentham*, ed. T. L. S. Sprigge, 1 (London, 1968), no. 131, pp. 228–30, 10–11 Apr. 1775.

in the yards. It was certain that 'there was impossibility of rising in the place of Surveyor without passing through every inferior gradation... there is no possibility of being appointed to any of the offices concerned with the building part without having served a regular apprenticeship...'.[1] Samuel was an exception; but nevertheless, prevailing attitudes towards shipbuilding, together with the training of those who did reach the top of the civil administration, meant that there was a conservatism in ideas and methods at every level in the shipwright branch.[2]

Experience was therefore at a premium in qualifying for a post; originality and talent were not particularly sought after because they were not required. Thus the average age of those who attained the rank of Master Shipwright in the last quarter of the eighteenth century, when first appointed to the rank of 'Master', was thirty-five; those who failed to reach the top position received their first Admiralty post at forty-five.[3] The average age on gaining the first Master Shipwright post was fifty-four, while that at the last posting was sixty. Some were well above this; Martin Ware was appointed to Deptford at seventy, and did not retire until seven years later. In what was supposed to be an active supervisory role, these ages were an undoubted hindrance to efficiency. It is significant that Middleton issued a Standing Order after the war to the effect that no foreman over fifty, and no quarterman over forty-five was to be recommended for promotion.[4]

A further factor telling against efficiency was the unnecessary movement of shipwright officers from yard to yard—a situation which was heavily criticized by the Commission on Fees, which recommended the standardization of income through the abolition of fees in the six yards to discourage this frequent movement.[5] The other trades, with the exception of the Master Attendants, would usually stay in one yard all their lives. There were, for instance, only two Master House Carpenters at Sheerness between 1743 and 1811.[6] More often than not, Master Sailmakers, Joiners, Smiths and Bricklayers, after long service in the position, died while still at their posts. The shipwright officers, however, not only rose through the service rank, but also by yard; there was an unwritten

1 *Ibid.*

2 Samuel was very much the exception in wanting, as a gentleman, to go into the dockyard service. His father reminded him that 'you are nothing more than a Volunteer and in that respect circumstanced, as no one ever was before you, in a Dockyard, nor probably ever will again' (B.M. Add MSS 33537, fo. 341, 13 May 1775).

3 The ages of the shipwright officers have been calculated from the evidence of the Commission on Fees by assuming entry at the minimum age of fourteen. In almost every case, a shipwright rising through the service would be appointed 'Master' of a particular trade within the shipwright branch. Thus 'Master Mast Maker' or 'Master Caulker' was a relatively junior post.

4 P.R.O., ADM 106/2509, no. 140, 3 July 1783.

5 *Commission on Fees*, sixth report, p. 315.

6 N.M.M. Lists.

hierarchy. This ranking varied from post to post, but the objective of most officers in the civil line was to be appointed to Deptford or Portsmouth. In some cases Plymouth was beginning to be seen as more important, and therefore as more desirable, than the smaller yard in the Thames. Chatham had fallen from the high position that it had enjoyed earlier in the century. The descending order of yards at the time of the American War was Portsmouth, Deptford, Chatham and Plymouth; Woolwich and Sheerness were considered as the most junior, and appointment to these yards was seen as no more than a first step. Sometimes a shipwright would solicit for a lower post at a higher yard, and there is no doubt that this additional ranking increased the movement of officers from yard to yard. This yard seniority was primarily influenced by income, for although there was no official difference in the salaries in the six yards (with one exception of Sheerness, which was lower), the amount of fees and emoluments varied considerably. As an example, the income of the Master Shipwright at Chatham in 1784 was £508, while his counterpart at Sheerness received only £341.[1]

These factors affected the length of tenure of yard posts. Master Shipwrights stayed at the larger yards for an average of eight years, three or four times longer than the occupants of the posts at Sheerness or Woolwich. There were nine Master Shipwrights at Sheerness between 1772 and 1786. At the positions of Master Shipwright's Assistant, Master Boat Builder or Master Mast Maker, there was a considerable jostling for position. It was not infrequent for an officer to be appointed to three Assistantships in three yards before he was made full Master Shipwright, and in many cases the stay lasted for no longer than a few months. In the American War period no shipwright officer stayed at Woolwich for more than a little over two years, and the average stay was considerably less. Although an exceptional case, the post of Master Caulker at Chatham was filled by no less than six different officers in 1755.[2] Over this inefficient system the Navy Board had little control, and Middleton, once established in office, soon began to make his views known.

Whatever precipitated the controversy in 1781, there is no doubt that the Comptroller's frustration was genuine. Piers Mackesy, using M. J. Williams's analysis of Sandwich's Appointment Books, states that: 'Middleton's complaints of political appointments in the dockyards do not stand up to scrutiny', but provides no motive for the Comptroller's outburst to his

1 *Commission on Fees*, sixth report, pp. 391, 407.

2 See N.M.M. Lists. Each Master Shipwright had served in four or five yards, while Thomas Pollard had served in all six, and had been Master Shipwright in four. The average number of Admiralty appointments for the Master Shipwrights was six. The actual time of moving, especially from the Western to the River yards, could take up to two months.

patron, with whom relations had, to this time, been remarkably good.[1] Selfish motives have been attributed to him, by pointing out that Middleton was not above using patronage himself; but it is hardly justifiable to infer from this, as Williams does, that the Comptroller was trying to gain more power in the civil administration purely for himself.[2] He was far more concerned with the efficiency of the yards, of which he never had a good opinion, than with the morality of patronage.[3]

Sandwich might have been warned of the coming onslaught early in the previous year, when Middleton put his case briefly: 'It will be much more agreeable to me and much less troublesome to your Lordship if the abilities of the officers and men serving under the Navy Board come officially from themselves, when your Lordship may rely on my not suffering you to be deceived by improper representations.'[4] In the Comptroller's view the yards were inefficient and corrupt, and his board, which was responsible for their administration, could do little about one of the chief weaknesses—that of the low calibre of the yard officers. If the Admiralty was going to promote the officers without any reference to the Navy Board, then the junior board could not ensure that the right men came up for promotion. Furthermore, he argued, it was beneath the dignity of the Admiralty to have to inquire into the characters and merits of those in competition for posts.

A further weakness in the Navy Board's position, he maintained, was that it was difficult to discipline the yards; '...we dare not contest a single point of duty with either the shipwrights, caulkers, or ropemakers at this time', he wrote to Sandwich.[5] This was a most definite weakness, for the principle was that only the appointive board could dismiss or even

1 Piers Mackesy, *The War for America* (London, 1964), p. 11. Mackesy also refers to 'remarkable figures in defence of the disinterestedness of Sandwich's practice', from M. J. Williams, The Naval Administration of the Fourth Earl of Sandwich (unpublished thesis, Oxford, 1962). Williams, however, allows too much significance to Sandwich's Appointment Books, which were only rough notes, and were not kept up accurately; his statistics and arguments are therefore suspect.

2 Williams, *op. cit.* pp. 277–9. Middleton tried unsuccessfully to obtain a post for his brother in 1778 and a Colonelcy of Marines for himself in 1781 (see N.M.M. SAN/T/8, undated, 1778, 15 Aug. 1778, 29 Oct. 1781).

3 References to Middleton's unfavourable opinions of yard officers are too numerous to specify individually. An example of 1782 can be considered typical, when he referred to them as 'low men, easily to be corrupted' (Shelburne Papers, William L. Clements Library, vol. 151, item 40, 9 Sept. 1782).

4 N.M.M. SAN/T/7, 3 Feb. 1780. Although Middleton had obviously been aware of the problem for some time, the immediate cause of the controversy in 1781 was probably Middleton's failure to obtain promotion for John Cleversal, Master Joiner at Sheerness, who had given the Comptroller private information on yard affairs. See R. G. Usher, The Civil Administration of the British Navy during the American Revolution (unpublished thesis, Michigan, 1942), p. 464; also *Barham Papers*, II, p. 24, 3 Feb. 1781, Middleton to Sandwich.

5 *Barham Papers*, II, p. 29, Feb. 1781?

reprimand the officers concerned. While the Board used such words as 'disapproval' or 'displeasure' in their dealings with yard officers, any official measures required the authority of the Admiralty. The case of neglect in the subsidence of the Great Basin at Portsmouth in late 1774 provides an illustration. The Navy Board, in charge of the investigation, was only able to deal with the foreman involved; further reprimands and punishments had to be given by the Admiralty to the Master Shipwright and his Assistants and to the Master House Carpenter.[1] Middleton's claim that the senior officers of the yards were 'as independent of us as if we were unconnected with them', although subject to the exaggeration to which he was prone, was, in general terms, accurate.[2]

The controversy centred around the best method of selecting suitable candidates for promotion. Unfortunately, there were contradictory claims of precedent to confuse the issue. The yearly Admiralty Patent gave Sandwich absolute appointive powers over the whole Navy. Against this, Middleton could claim that the 1662 Instructions laid down that the Navy Board was 'to search out who is diligent and who is not', and to recommend to the Lord High Admiral who was worthy of promotion.[3] Without this claim, the Comptroller's case was weak, for the junior board's interest in yard appointments had lapsed for a long time.[4] Middleton, however, wanted more than this; he was 'clearly after bigger things than the right to present recommendations; it is abundantly clear that he wished the recommendations to be binding on the Admiralty'.[5] In a letter to Lord Shelburne after the controversy, the Comptroller made it clear that he wanted the system changed, although he disguised the force of his proposals by saying that he was not attacking the location of power. If the First Lord was an exceptional man, 'of independent principles, of First Rate abilities, impartial in his promotions, and of that liberal turn of mind, that makes him open to all informations that has the improvement of the service in view...', the system would work fairly and efficiently. However, he continued, this was never the case;

> the equipment and Application of our Naval Force in time of war, is in a manner wholly submitted to his judgement, and that in the promotion of officers he has no check, but his own sense of what the King's service requires, and which but too often has availed little against his desire of strengthening himself by yielding to private solicitations...[6]

1 N.M.M., ADM B/189, 13 Dec. 1774; P.R.O., ADM 95/95, 13, 28 Dec. 1774; ADM 3/80, 24 Dec. 1774.
2 *Barham Papers*, II, p. 25, 3 Feb. 1781, Middleton to Sandwich.
3 *The Oeconomy...1717*, *op. cit.* p. 3.
4 For instance, in 1775 the Board recorded in its minutes for a petition from a Foreman House Carpenter who wished to be recommended to the Admiralty that 'the Navy Board does not make recommendations to the Admiralty' (P.R.O., ADM 106/2592, 10 Jan. 1775).
5 Usher, *op. cit.* p. 87.
6 Shelburne Papers, *op. cit.* 9 Sept. 1782, Middleton to Shelburne.

In spite of this complaint of unbridled powers, it is clear that Sandwich did take professional advice on the promotion of technical officers.[1] This information was taken and given on a personal and informal level, and he went to the Surveyor for it rather than the Comptroller or the whole Navy Board. Sandwich wished to be free to take advice, but he was not going to be bound by any precedent, nor confined to taking recommendations from any one source. In making promotions, the Admiralty Board did not think that it was 'for the good of the service to confine ourselves to decide in consequence of the particular representations of any other office'.[2] The First Lord took his stand in the controversy by saying that he would listen to the recommendations of the Navy Board together with the representations from every other source. His only concession, therefore, was to instruct the junior board to make regular reports of those in competition for vacancies.[3]

Middleton's complaints of bad appointments may well have been justified on the grounds of efficiency, but his reference to Sandwich's 'political system of management' do not appear to be wholly justified.[4] The clerical posts may have been more susceptible to political pressures. Peter Butt, appointed as Clerk of the Survey at Deptford within two months of an application backed by the Duke of Cumberland, was one example. Even so, Butt was more than qualified for the post. He had been in the Navy for thirty-three years, a Purser on board the *Superb* since 1755, and Clerk of the Survey at Sheerness for one and a half years before his appointment to the more senior yard. Furthermore, he did not get the post for which he asked; in spite of the weight of the name of the Duke, the most lucrative clerical post in the civil administration, the Clerkship of the Cheque at Portsmouth, went elsewhere.[5] On the technical side of the civil administration, the situation was not so clear-cut; because of the factors already examined, political patronage was not the most significant factor governing a shipwright's career.

Out of the 300 or so applications for dockyard posts recorded in Sandwich's Appointment Books, political usefulness was used only 13 times as a relevant qualification. It is notable that only four of these were successful.[6]

1 E.g. N.M.M., ADM B/193, 26 May 1776, Williams to Sandwich.
2 *Barham Papers*, II, p. 14, 9 Jan. 1781, Admiralty to the Navy Board.
3 *Ibid.* p. 15. 4 *Ibid.* p. 18, 21 Jan. 1781, Middleton to Sandwich.
5 N.M.M. SAN 1, 29 May 1771. Butt was appointed on 14 Aug. 1771.
6 N.M.M. SAN 1–3, 5–6, Sandwich's Appointment Books. Volume 4 is missing; this would have covered (approximately) the year 1778, when only seven Admiralty appointments were made to the yards. These books are difficult to use, since only the first volume is dated. They were used only as rough notebooks, and were not kept up accurately. There is much repetition. Out of the 150–160 appointments made by Sandwich from 1771–82, just under 90 were the

Nevertheless, it was presumed that Sandwich's political machinations governed the yards as much as in the rest of his political life.[1] Jeremy Bentham complained that his brother was not able to get the position he desired in the yards, even when he had applied personally to the First Lord: 'Lord Sandwich's answer was...that the places did not lie in the Department of the Admiralty. What everybody is agreed about is that the place would have been within the Department of the Admiralty if Sam had been a freeholder of Huntingdon.'[2] It must be pointed out in Sandwich's defence that Bentham was applying for a relatively senior post, and one under the control of the Navy Board, straight from his apprenticeship; if his request had been granted, he would have defied more than a century of precedent. Against this evidence can be placed the applicants in the Appointment Books who mention that they are freeholders of Huntingdon; none of them are successful. Likewise Samuel Hogsflesh, foreman of the Smiths at Sheerness, applied unsuccessfully for the post of Master Smith, in spite of the fact that 'his father [was] a freeman of Rochester, and [there were] four votes in the family'.[3]

The most constant factor that emerges from an analysis of Sandwich's appointments to the yards is the attention paid to seniority in the shipwright branch. The careers of the Master Shipwright officers continued on virtually parallel courses once the initial selection had been made. Moreover, the Master Shipwrights who had a political patron rose no faster than those who had none.[4] By far the most frequent qualification put forward by applicants for posts was their seniority; virtually every applicant included the number of years that they had been in the service. For instance, George White, when appointed from the first Assistantship at Deptford to full Master Shipwright at Sheerness was noted in the Appointment Book as being 'the most senior assistant in the service'.[5] This regard for seniority

result of petitions recorded in the books. There are 180 completely unsuccessful petitions; 50–60 did not request positions in the home yards. It must be presumed that posts filled without any record of petitions, numbering about 70, were decided by informal consultation, either with the Navy Board or with non-professional sources.

1 Outside the civil administration of the Navy, Sandwich's life had been dominated by political patronage and influence (see *Nathaniel Wraxall, Memoirs*, ed. H. B. Wheatley, I (London, 1884), pp. 398–404; also Namier and Brooke, *History of Parliament, The Commons, 1754–90* (London, 1964), p. 144).

2 *Correspondence of Jeremy Bentham*, II, p. 108, no. 248, Apr./May 1778. Sandwich controlled the Parliamentary seats in Huntingdon.

3 N.M.M. SAN 2.

4 E.g. Thomas Pollard, Master Boat Builder at Portsmouth, applied for an assistantship on 16 Jan. 1771. His name was put forward by the Earl of Rochford and Mr Fuller; but he was not appointed until 17 Feb. 1775, and then only to Woolwich (N.M.M. Lists and SAN 1; see also Ehrman, *op. cit.* p. 106).

5 N.M.M. SAN 3.

irked Middleton, and was the particular factor in the issue which precipitated the whole controversy. The post of Master Joiner at Woolwich was vacant, and John Smart, who eventually got the post, was aged sixty-three; Middleton's candidate was 'at the active age of thirty-four'.[1] Far from promoting inexperienced and unqualified officers, Sandwich respected the conventions of the yards in making his choices; Middleton, on the other hand, wished to introduce a selective process to get younger and more energetic supervision in the yards.

By 1781 the Comptroller had in fact attempted to introduce some system of meritocracy into the promotion of the lower ranks of the yard officers appointed by the Navy Board. It is clear that until Middleton came to the Board there had been little effort to keep a check on the calibre of those men appointed by Navy Board warrant. The confirmation of the recommendations of the yard officers was automatic, although the Resident Commissioner was considered to have been a check. There is no evidence, however, from the Commissioners' letters that the Board concerned itself with this problem.

The only safeguard that governed the promotion of quartermen was that each yard was to transmit a quarterly list to the Board of those who were acting quartermen, and that it was understood that these men were to have precedence in promotion to full quartermen.[2] Even these regular accounts had lapsed until the outbreak of hostilities. The only principle to have been established was that quartermen were to rise by seniority unless the yard officers had 'any objection to their Diligence, Ability or Behaviour'.[3] Middleton's first Standing Order on the subject indicated the existence of interest; it laid down that no one was to be recommended as an acting quarterman unless he had been out of his apprenticeship for more than four years.[4] A year later four more comprehensive orders were issued, aimed at bringing accurate information on the qualities of those recommended. Quarterly lists were to be submitted by the yard officers collectively, with information on time lost in the last four years, performance and character.[5] After the war the systematization continued, and seven more regulations were issued. In September 1782 a printed form was sent to the yards demanding more information, not only of those who wished

1 *Barham Papers*, II, p. 24, 3 Feb. 1781, Middleton to Sandwich.

2 P.R.O., ADM 106/2508, no. 559, 4 Oct. 1770. Orders regulating the transmission of lists were comparatively recent (P.R.O., IND 9315, s.v. Quartermen, 27 Feb. 1758). The lapses can be traced through the Board's minutes (P.R.O., ADM 106/2592–7, especially 1–15 Jan., 17, 19, 23 June 1778).

3 P.R.O., ADM 106/2508, no. 593, 31 Dec. 1771.

4 *Ibid.* no. 768, 17 Nov. 1778.

5 P.R.O., ADM 106/2508, no. 893, 1 Sept.; no. 894, 6 Sept.; no. 918½, 6 Nov.; no. 920, 8 Nov. 1779.

for promotion, but of those already promoted. Five months later, the form was revised. The Navy Board, it stated, was 'determined as far as is in our power to give a preference to such petty officers and Artificers whose Abilities and Conduct appear deserving of it and to discountenance upon every occasion those who appear undeserving...'.[1] For the first time the Board concerned itself with the calibre of the men it appointed, while at the same time it sought to instil some order and authority into the promotion of the lower ranks of officers.

This regulation of promotion procedure was Middleton's solution to the problem of curbing the power of the yard officers in making the initial selection of the men who would eventually rise to the top of the civil administration. In the controversy with Sandwich he acknowledged the existence of this patronage at a junior level, and used it to exonerate himself from charges of directly attacking the power of the First Lord:

> As Comptroller of the Navy, I cannot designedly encroach upon a foreign patronage, while the patronage already with us—I mean that which includes the inferior officers—is, in effect, transfered to us by the superior officers, whose recommendations we receive exactly in the degree in which we wish ours to be received by the admiralty; not so implicitly as to deprive ourselves of the right of judging recommendations...yet...so generally as to render such recommendations an object strong enough to rouse the exertion of such as wish for advancement.[2]

Yet it was just this patronage 'already with us' that Sandwich suspected, rather than Middleton's motives. He feared the civil administration as a whole, and in particular the self-perpetuating élite in the yards. He considered that a disinterested appointee (as he considered himself) was more likely to make a just appointment if the recommendations did not come from a professional source. He countered Middleton's argument that the recommendations of the Navy Board were more accurate than others because confirmed by the principal officers of each yard collectively and individually, by pointing out the relative ignorance of the junior board:[3] 'Everything you point at in your letter may be attained by other means than the collective testimony of the whole navy board, many of whom have very few opportunities of knowing the particular characters of the persons serving in the dockyards, otherwise than by representations from persons prejudiced or interested.'[4]

It is clear, therefore, that the factor which affected promotions in the shipwright branch was not so much Admiralty patronage as initial selec-

1 P.R.O., ADM 106/2509, no. 30, 6 Feb. 1783. See also ADM 106/2508, no. 1112. 19 Jan. 1782; nos. 1188–90, 5 Sept. 1782.
2 *Barham Papers*, II, p. 26, 3 Feb. 1781, Middleton to Sandwich.
3 *Ibid.* p. 25.
4 *Ibid.* p. 27, 3 Feb. 1781, Sandwich to Middleton.

tion by yard officers. Almost all of this process is unrecorded. Personal likes and dislikes, family and other connexions, governed the enclosed world of the royal yards; the extent and effect of allegiances in national politics similarly remain a mystery. It was an inbred society, apart even from shipwrights in merchant yards; sons were apprenticed to fathers and uncles.[1] The Master Caulker at Chatham wished it to be recorded in his evidence to the Commission on Fees that his family had been shipwrights in the royal yards for 200 years.[2] What is certain is that it was a highly stratified society, which excluded ordinary shipwrights, however skilful or energetic, from rising through the service.[3] In spite of a theoretical equality, whereby all officers and men had to start their careers as apprentices, it was this same apprenticeship system which perpetuated the exclusiveness. To this extent, both Sandwich and Middleton were prisoners of the organization which they governed.

The controversy was therefore primarily a disagreement about means rather than ends. Both men wished to deal with 'persons prejudiced and interested'. The First Lord thought that the existing system of using non-professional recommendations would neutralize yard interest. Middleton, however, was prepared to fight it, and at the time of the controversy was confident that he would be able to regularize the recommendations and institute a 'more equitable system'.[4] Yet while there were many faults in the yards only too apparent to the Comptroller, and while his proposals seem more akin to modern ideas, they contained basic flaws which Sandwich recognized. The size of the organization prevented the administering board from controlling appointments in detail, and the system thus depended on the yard officers. Middleton's proposed system of recommendation through the Navy Board, while attempting to strengthen the hand of the civil administration, merely gave more weight to the recommendations of the yard officers, who were the very men whose influence the Comptroller wished to curtail. The interests and pressures at yard level were to prove too much for even Middleton's administrative talents. This he appeared to recognize before too long, for before the end of 1781 he wrote to George White, complaining of an appointment which the ex-Master

1 This the Navy Board encouraged (P.R.O., ADM 95/95, 21 Aug. 1778). See also Ehrman, *op. cit.* p. 97; also Baugh, *op. cit.* pp. 304, 318–19.

2 *Commission on Fees*, sixth report, p. 374.

3 An examination of the wills of the Master Shipwrights shows them to have been men of some substance—far apart from the ordinary workman. William Grey, for instance, left £6000 and Israel Pownoll several pieces of property. Much of this must have come from legacy or marriage, for even with the fees that they took with their salary, they could not have amassed this independently (P.R.O., PROB 11/1006, fo. 95; 11/1053, fo. 214).

4 *Barham Papers*, II, p. 18, 21 Jan. 1781, Middleton to Sandwich.

Shipwright of Woolwich yard had caused to be made more than a year before:

I now perceive that all my endeavours must end in nothing; for if you, to whom I have said so much on this subject, will put men into places of trust who are incapable of performing the duties of them, and thereby act unjustly by those who are, to the prejudice of the King's service, what am I to expect from others who have not fallen so immediately under my notice?[1]

The problems raised by the controversy could have no easy answer until the whole basis of eighteenth-century social and administrative attitudes were changed. Middleton was unable to effect any change, and if anyone could be described as losing the argument, it must be the Comptroller. Both men had very good reasons for acting as they did. If Sandwich had given way to the Comptroller's demands, the senior board would have gone a long way to losing the primacy that was necessary to the Navy as a whole; he feared an abuse of power if the Admiralty's choice was narrowed. Besides, the proposals went against everything that had governed the First Lord's political life.[2] Middleton saw the system, as it was, as an abuse by his professional standards; but they were, in that sense, ahead of his time. Appointment by merit, without prejudice, interest or money, was impossible to introduce into the yards by the stroke of a pen. He wrote five years later:

I find politics have got too great a hold on this branch of the navy for me to withstand it. . . I shall contend no more for the public, having raised a nest of hornets already by so doing. I trust those who follow me will have more weight than I have had, and influence ministers to correct these evils.[3]

1 *Ibid.* II, p. 31, 24 Dec. 1781.

2 See J. M. Haas, 'The pursuit of political success in eighteenth-century England; Sandwich 1740–1771; *Bulletin of the Institute of Historical Research*, XLIII, no. 107 (May 1970), pp. 56–77.

3 *Barham Papers*, II, p. 30. An endorsement, dated January 1786, of a letter never sent to Sandwich, although obviously written during the controversy.